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THE EDUCATION OF TO-MORROW

*The Adaptation of School Curricula to
Economic Democracy*

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INTRODUCTION

ONE in touch with educational thought to-day in any progressive country realises that there is great diversity of opinion regarding the value of the work now being done in the schools. During the past ten years the present writer, in the discharge of certain special duties, has found it necessary to read many hundreds of editorials in the leading newspapers at home and abroad regarding contemporary educational practices. While in many cases there has been hearty praise of both the curriculum and the methods in the schools of to-day, yet the deepest impression made by the reading of these editorials has been that there is widespread popular discontent with educational institutions as they are now conducted. The expression of dissatisfaction seems to be more open and aggressive in America and in England than elsewhere; but even in Germany, whose school system has of late been held up to the world as a model, there is developing a vigorous opposition to the traditional régime, in respect

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alike to studies and to the methods of presenting them.

In our own country, there are many who feel that the whole educational system has lost its anchor, and is drifting upon stormy seas. It is freely claimed by these critics that pupils do not come from the schools to-day as well trained for practical life as were the pupils of half a century ago, when teaching was a more or less haphazard undertaking. It is said that graduates of the elementary and the high school are in these times ill-prepared for responsibilities of any sort. It is the usual thing to read editorials charging that boys and girls with their diplomas are as a rule inaccurate in tasks requiring precision in thought and action; and they are said not to be methodical, or faithful, or independent, or effective in any useful activity. In short, they are not fitted for the needs of every-day life.

The schools are condemned again because, as it is claimed, they have introduced subjects which have only temporary, and perhaps little more than sentimental, value. Without attempting here to be mathematically precise, it may be said that there is published in every city in this country one or more newspapers which are continually attacking the schools on

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account of the “fads” and the “frills” which, it is claimed, are being given more attention than the “substantials” in education. One who will take the trouble so to do may in the course of a few weeks read hundreds of editorials upon the “degeneracy” of the elementary schools, since, according to the critics, they have abandoned the thorough teaching of arithmetic, reading, writing, and spelling, and are wasting their energies largely upon the teaching of music, drawing, nature study, history, literature, manual training, and domestic science.

The gradual spread of the elective system in the high schools, colleges, and universities has drawn from a considerable part of the press of this country a spirited and continuous warfare, while it has at the same time won warm support from the majority, perhaps, of our people. The almost complete disappearance of Greek, and the gradual elimination of Latin from the high schools, especially in the states west of the Ohio River, are apparently distressing to many persons, if their views are correctly presented through the editorial utterances of the daily press and the magazines. It is urged by some that modern studies,—as history, English literature, French, German, com-

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merce, science, industrial subjects and the like, —cannot “strengthen” the “sinews of the mind” as can Latin and Greek. Then, too, there are still among us those devotees of ancient culture, who feel that modern civilisation is crude and materialistic compared with the glorious civilisation of ancient Greece and Rome; and one whose mental life is not moulded on the Greek and Roman models cannot be said to be educated in the true sense.

The distress of the idealists is revealed in a recent expression of a prominent editor, who claims that “educational science regards the development of the inner life as the true course, and yet it is almost entirely neglected in both common school and college. A material education is the one sought, and though this is against all philosophy, it is kept up by the clatter and clamour of the world’s perverted ideals. The energy of the school’s purpose is diverted almost wholly to how to make a living, while how to live, which is the greatest quest, is quite neglected.”

The present-day school finds itself between Scylla and Charybdis. Not only is it denounced by those who regard contemporary civilisation as degenerate,—as tending toward the exaltation of what is materialistic and sensuous; it is

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attacked with equal ardour and earnestness by those who feel that it is lagging behind in the progress of civilisation. A considerable proportion of the more important and influential newspapers in this country—those which probably reflect prevailing opinion most accurately—are constantly saying that the school as it exists among us is not fully adapted to the needs of the times. It is teaching topics which, if they ever had value, have ceased to possess it to any extent, because of the changed conditions in contemporary life. Men everywhere are urging the schools to free themselves from the shackles of tradition, and teach the young those things which will interpret modern life for them, and give them power to put their interpretations into practical operation for their own good and that of their fellows. For instance, teachers are being advised to cease teaching mere exercise problems in arithmetic, and to put in their place problems that relate directly to modern commercial, industrial, agricultural, and urban life. Let arithmetic, they say, be curtailed so that room may be made for studies that deal with important matters, as sanitation, nutrition, common diseases, home-making, plant and animal life, city and town government, the methods of corporations, the

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dangers to our civilisation from political corruption, and so on *ad libitum*. And the modifications and abridgment which are being demanded in respect to arithmetic, are being urged also in regard to grammar, spelling, penmanship, reading, and geography.

The present volume should assist our people, whether laymen or teachers, to see more clearly than they have done heretofore the fundamental principles in view of which the problems of studies and of methods of teaching must be solved. Professor Weeks maintains that true knowledge always assists its possessor to adjust himself to the world in which he lives. It gives him insight into the constitution of some phase of his environment, and skill in adapting himself to it, or in utilising it to minister to his needs. The majority of serious students of education throughout the world to-day hold to this as the right view of genuine knowledge, and Professor Weeks is certainly justified in making it the basis of his system of educational values. In an interesting and satisfactory way he has analysed the situations in which the typical individual is placed, which determine the types of knowledge which he must acquire in order that he may successfully solve the problems presented in every-day life.

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It seems to the writer that Professor Weeks has made a distinct contribution to contemporary educational theory in his lucid discussion of the three sorts of knowledge—productional, distributional, and consumptional—which must be presented in the curricula of the schools in order that the welfare of the individual and of the group may be preserved and promoted.

There are some people to-day who maintain that the importance of the school in society is immensely overrated. They say that the newspapers, magazines, and similar agencies are of primary importance in disseminating useful knowledge among the people. But any one who will read Part Two of this volume will probably be convinced, even if he approaches the subject as a sceptic, that the school does, and always must, play the all-important rôle in making knowledge effective in the lives of the rising generation. It is the one institution established by society for the purpose of inducting the young into the wisdom accumulated by the race in its efforts to increase the sum total of happiness among men, and to lessen the pains due to lack of understanding of man's environments, social and physical. Professor Weeks recognises the value of numerous agencies for the education of the people, but he

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very properly makes them singly and collectively subservient to the school. It is likely that the majority of people in America will endorse this view; but it would be of distinct advantage in American life if communities everywhere would recognise the supreme importance of the school in conserving and improving our democratic institutions.

The writer predicts that no one will read Part Three of this volume without being impressed with the necessity of introducing into our school certain types of knowledge which now are not found there at all, or are given but slight attention. The author presents the matter from the right standpoint, for he takes life exactly as it is being lived in typical communities, and examines the outcome in physical and social well-being. He finds that people fail to attain many of the things toward which they strive, mainly because of lack of appropriate knowledge, and he contends that this knowledge should be generally supplied to pupils in the schools.

It cannot be expected that every one who will read this volume will endorse all the views that are presented, because little stress is laid herein upon the so-called culture studies, though they are not excluded from the curricula which

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the author proposes. But for the most part it is assumed that if pupils in the schools are given the knowledge which will enable them to adjust themselves effectively to the social and physical situations in which they are placed, they will receive culture in the process. Professor Weeks is certainly in accord with the best thought in America to-day in his position on this question. The older view of culture, as consisting in the learning of ancient languages and histories, has been generally abandoned, as well by those who teach the classics as by those who exalt modern subjects. We are coming to believe that the cultivated man is the one who knows how to handle himself effectively in every-day life. He will not offend people, and he will not shirk his responsibility in pulling his own oar. He will not attach value to learning for its own sake. He will praise that sort of information only that can be utilised in some manner in adapting oneself harmoniously to the people among whom one lives, or in utilising natural forces to serve him and his fellows in their needs. The author has presented this conception of education and of culture in a clear, concrete, and convincing manner.

In this volume Professor Weeks deals with

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subjects of large and general importance, and he has chosen a style and a vocabulary which are suited to the scope and dignity of his theme. His conception of knowledge and of education is a dynamic one; he has firm convictions regarding the importance of the problems which he considers, and his style partakes of the vigorous and positive character of his thinking. The work as a whole should prove of distinct service, not only to educational people, but to laymen who are interested in educational progress and in social improvement.

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PART ONE
KINDS OF KNOWLEDGE

Some considerations regarding the nature and function of knowledge, the main relations of life in which knowledge is of use, the agencies for the diffusion of knowledge, especially the school, and the conditions under which the movement for social welfare and democracy may be promoted through the curriculum are offered in the following pages.

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I

THE USE OF INFORMATION

IMAGINE a person deprived of his stock of knowledge. His nature would propel him along purely instinctive lines, but in each situation in which he found himself he would suffer seriously for lack of consciousness of past experience. The instinct of sociability might draw him toward a fireside group, but he would know neither how to act with reference to others nor how to protect himself from the dangers of fire. Were he to cross a railroad track the instinct of curiosity would likely hold him on the rails till run down by the train. Deprived of his former experience with railroads and the knowledge gained from others' experience with railroads, our hypothetical person would no doubt fall an early victim to the dangers of the railroad crossing.

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Similarly with a multitude of situations requiring adjustments on the part of the individual. The mental picture of a former situation and its results leads to the avoidance or the repetition of the original experience. The more knowledge one has of former experiences the better able is he to choose wisely among new situations that present themselves. Deprived of images, which are virtually a photographic collection for reference purposes, the individual would forever be debating the wisdom of alternatives and exposed at every turn to the disasters of unwise choices. No evolutionary attainment of the organism is comparable to the mental process which effects a restoration of the past for purposes of guidance as to future movements and decisions.

Knowledge enables one to meet the requirements of environment, while lack of it involves maladjustment entailing unnecessary friction, waste, loss and suffering and in extreme cases death. Knowledge vastly conserves effort and directs energies aright. Representing as it does the significant experience one himself has had as well as the experience of the race so far as assimilated through the processes of learning, one's knowledge saves from numberless hazards and points the way to economies and

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system in relation to environment. Knowledge sets the screws of adjustment, enabling the organism to accommodate itself to variations. It warns by citing appropriate examples from the past. Its function is to promote correspondence between organism and environment.

Since the function of knowledge is to articulate the individual with his environment, it is evident that what is valuable knowledge to one may be worthless knowledge to another, except so far as all individuals have needs in common. It will not do to pass upon this or that quantum of knowledge absolutely. The values of knowledge are ever relative to the individual himself.

The question of the functional value of knowledge is, then, largely a personal one. Is Greek a valuable knowledge? It was to individual Greeks in Greece. It is less so to the Greek in America who sells fruit to Americans. To the American? That depends. But the question must be discussed always with reference to particular individuals or classes having needs in common.

To evaluate knowledge for the individual requires acquaintance with the relations which he will sustain to his environment. What will he

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do during the rest of his life? Where will he live? A polar explorer would perish on the knowledge that would keep alive a traveller in Africa. Will he marry and have children? Does his health require special attention? What are his interests?

But these questions cannot all be answered, even by the person himself. Regardless of intentions and plans the individual always to some extent finds that his expected environment presents surprises. New needs arise. Changes come unbidden. The expected career is dislocated and vicissitudes multiply. We have not only the individual, with his expectations and traits, to deal with, but animate and inanimate nature, and a fluid social environment. Collision and contact with a complex environment precipitate difficulties, and hour by hour maladjustments threaten. Evidently no one can foresee all the relations of life for which articulatory knowledge will be required. Yet correspondence with environment, life itself, depends upon the presence of knowledge at points of need.

Admitting the difficulty of supplying the individual with knowledge which will avail at every point of need, there can be no question as to the superlative importance of equipping

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him with that approximating his needs as nearly as possible.

One should be supplied with knowledge for at least the more frequent exigencies. The function of knowledge is peculiarly well illustrated in the physician's prescription. He brings experience to bear upon a maladjustment, and disease is diagnosed and a remedy applied. One's stock of knowledge should as far as possible enable him to protect himself against maladjustment, real or threatened. In fact, to live is to keep oneself in conformity with the requirements of one's surroundings, and the highest wisdom is to know how to do it. Of this knowledge one cannot possess too much, and of it he should possess all that is possible. Education should supply knowledge of maximal value in effecting the articulation between organism and environment.

Grant that with the fullest and most careful provision of knowledge there would exist relations for which one's supply of knowledge would be insufficient, and many of such exist. Yet may not the fundamental relations be singled out and utilised as principles for the organisation and inculcation of information? A canvass of the fundamental relations which people most frequently and seriously sustain to their

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environments suggests itself. The next step in the efficiency of the educative process is a study of special relations and needs, and the formulation and impartation of knowledge specifically adapted to promote adjustment. Fundamental principles governing the values of knowledge, and surveys reporting the dominant needs, from which the principles may be derived, are indispensable for a rational system of instruction. There is need of standards for the evaluation of knowledge based upon its importance in adjustment.

As a step toward determining what classes of facts have most value and most deserve impartation, it seems desirable to note the major social relations of the individual, especially as illustrated in economic situations. Some knowledge values may fall outside of economic category, but an attempt may be warranted to classify knowledge and appraise its values from the standpoint of the three fundamental social processes of Production, Distribution and Consumption.

II

THE PRODUCER'S KNOWLEDGE

THE production of wealth lies at the basis of social organisation and individual well-being. Civilisation advances only as supported by adequate wealth production. The slums of city and country exist largely by reason of insufficient wealth on which to base the higher attainments. The production of wealth, implying participation in its production and the presence of the product, is fundamental in social importance.

In view of the basal nature of production we should expect to find an extensive knowledge associated with wealth-producing processes. And indeed there is an enormous body of facts grouped about the various arts concerned with production. Productional knowledge is scattered everywhere throughout society. Wherever values are created by primary processes there may be distinguished the type of past experience to which the world owes its steady accumulation of useful commodities. The

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farmer, weaver, butcher, blacksmith, miner, bookbinder and fisherman each represent a special art based upon and concerned with more or less extensive bodies of knowledge. In some cases this knowledge is of the merest sort, a thin empiricism barely sufficient for the ordinary needs of the calling and failing in times of exigency. In other cases the empirical beginnings of the science related to the art have been broadened out by successive generations of workers and elevated by scholars into imposing sciences.

Knowledge related to the elementary arts consists largely in observations of the behaviour of materials and experience in dealing with them. Many workers can hardly be said even to possess knowledge touching their employments. Learning the processes by imitation and continuing by habit, it is possible for the wealth producer to illustrate automatism rather than active intelligence. Conscious appreciation of the truths involved in productional processes might, however, be regarded as an ideal.

In the building up of a science from its empirical beginnings quantities of experience not closely associated with production may be incorporated. There arises a bulk of knowledge,

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within itself representing all grades of relevancy to the productional art. In the grading of knowledge for instructional purposes there must always be discrimination between that which is essential to production and that which is speculatively or logically a part of the extended science. The most practical science, in origin and general purpose, may become hyperorganised and attenuated beyond evident applicability to the processes of wealth production.

Not only the arts of the miner, fisherman, and weaver constitute the activities of production. Values are created by the transportation of commodities, physically, and by their legal transference. The boatman, the express company, the banker and the attorney participate in wealth production in a real though secondary way. Declarations that all wealth comes from the soil or that the farmer is the only producer overstate the case against the secondary producers,—who not infrequently absorb a primary portion of the final value.

Most important of all are the services of those who contribute fertilising ideas at any point along the route of production. Inventors, whether of machines or methods, be they steam engines, card index systems or savings banks,

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supply an invaluable element in the production process, and are exponents of forms of productional knowledge of the greatest significance.

The legislator, who promotes measures for the control of weeds or the safety of wealth when produced; the policeman, who chases burglars; and the teacher, who dispenses productional information to pupils, alike assist in the creation of goods. In fact nearly all occupations have originated in production, and most occupations are still concerned with it directly. Many occupations, however, have become quasi parasitical, and indeed few of the occupations of secondary production have not developed a partial parasitism, but the concern that declares 100% dividends and cuts a "melon" betimes for the stockholders, the urban plutocrat, and the attorney whose fee for a single case exceeds the life earnings of a dozen average producers advance the production of wealth, though it may be from only a single point of usefulness surrounded by a vast penumbra of parasitism. The productional function of kings was undoubted when they fought off invaders while the primary producers went about their business unmolested. Generally speaking, every occupation is the centre around

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which an amount of productional knowledge is organised.

Every form of useful toil and all serviceable employments rest upon special types of knowledge. Every person, so far as he is a producer, employs knowledge peculiar to wealth creation. Non-producing individuals, or parasites, even if possessing productional knowledge, make no use of it, and rarely have an extensive acquaintance with such. Workers of the lowest grades, the unskilled, are notable for their lack of productional information. Factory routine is inconsistent with the possession of an ample amount of broader productional knowledge, and the operative presents a sorry appearance when detached from the niche in factory service, by which he has become limited through years of labor. There is an intimate relation between the kind and extent of one's productional knowledge and his value to society, his social status and his profit-taking advantages. The ranking and position of millions of wage earners and the directors of industrial enterprises are determined largely by the information possessed as to processes.

The mine operator knows much about the possibilities of mining not known to the man at the mouth of the shaft. The lumber expert by

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applying high forms of productional knowledge assumes a position of immense superiority over the chopper. Each producer is equipped with a measure of productional knowledge sufficing to put him in at least partial adjustment to the wide social fact of production. To perfect one's industrial adjustment, to prepare for the ideal relation to productivity, and to achieve a larger measure of opportunity and equality with others in dealing with the forces and materials which produce wealth would, however, require a far more general diffusion of the major facts underlying all wealth production and a laying bare of much esoteric information now closely guarded.

Productional knowledge is of all forms of knowledge most readily appraised. Of what value is knowledge of how to kill buffaloes or make coats of mail? Inasmuch as such knowledge could not be marketed, it is evident that its value, as related to the production of values, would be zero. It might have other than productional values, but with such we are not now concerned. The dollar is the test of the importance of the knowledge of production. That knowledge which enables one to do things that pay, in money, and make things that sell

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has a legitimate claim to classification as productional.

It would be an error to evaluate all knowledge as we here evaluate productional knowledge. There are other very important types of knowledge whose values are not commensurable with the money unit. But in the case of the type of knowledge under consideration there is the satisfying feature of definite measurement in unmistakable terms. It is perfectly proper to declare such and such knowledge worthless or of slight value, when speaking of the individual's relation to the productional feature of his environment. To the extent to which productional knowledge enters into the ideal mental equipment we may know with fair certainty the value of many facts one learns. What these values are for particular facts must be determined in particular cases. As the judge applies principles of law to new sets of facts, so in the process of instruction the money test is to be applied to productional knowledge. The man who would apply the money test to all types of knowledge is not more extreme than the one who would entirely spurn the money test.

Productional knowledge enables one to come

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into suitable adjustment with the phase of his environment consisting of the arts and occupations whose purpose is the creation of wealth by the application of labor and intelligence to materials which nature affords. And, one should add, the creation of real as contrasted with fictitious values. The finesse which raises the price of a vacant lot to an absurd level or forces up the price of farm lands beyond that warranted by what they will produce is distinctly a spurious wealth production resting on knowledge that has no claim to be classed with the sciences of production.

The possession of productional knowledge of primary nature may be tested by what one can do, what he can make, what occupations he is master of, and, in many cases, by the ease with which he secures gainful employment. The last test, is, however, an illusive one, as history affords examples of real producers starving and unemployed while those possessing little or no productional knowledge, but rather profiting by a different type of knowledge, luxuriated in the goods produced by those who alone knew well how to produce.

The feeling of helplessness which the college graduate sometimes experiences when his institutional education is completed and he is about

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to plunge into the activities of mature years often represents a paucity of productional facts, though such feeling of helplessness may coexist with a fair supply of the elementary knowledge of production, as how to hoe corn or feed sheep. Many a person feels the hollow sham of a life poorly adjusted to productional arts. Only by extensive class training may one subdue the instinctive demand for that knowledge which enables one to produce. The deepest needs of human nature are honoured in learning how to make things and fabricate crude materials into tools and further products. This knowledge exists in the consciousness of multitudes of workers, in many cases never having been committed to print; in the nooks and corners of labour; in books and technical publications; and scattered thinly throughout literature; for example, the "parable of the sower" is a lesson in farming. The conventional studies of the schools, as the three R's, contribute in some degree to the fund of productional information. The carpenter employs reading, writing and arithmetic when he notes descriptions and sets down calculations for the building of a table or chair. The productional value of knowledge seemingly unrelated to production is suggested when one calls to mind

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that the chair by common consent the most admirable was produced by a poet and a dreamer—the Morris chair.

The natural sciences embody large amounts of the knowledge of production, and their progress is synchronous with the increase of the world's wealth. A distinction is possible, however, in the productional and the non-productional content of the various sciences, as physics, biology, chemistry and geology. In the main production has looked to science and science has aimed to assist production.

Productional values appear in all the sciences dealing with man, as sociology, physiology, psychology and medicine. In Cuban cigar factories readers are said to be employed to read to the cigar makers as they work, evidently the result being not unfavourable to the output. The poet who inspires men with ambition resulting in increased activity, or the musician who invigorates to determined effort conduces as truly to the wealth total as the most energetic captain of industry. Literature and art are not to be overlooked in tracing the knowledge which affects the stream of wealth. One may easily undervalue the contributions of the less evidently productional types of knowl-

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edge, and, while properly laying stress upon the fact that directly functions for wealth, err in denying productional values to the more abstract mental products.

III

THE SCIENCE OF DISTRIBUTION

WEALTH once produced is distributed among the individuals comprising society. Production is the first step, distribution the second. If one could imagine a state in which production occurred without social effort and in which every one enjoyed exactly what he produced, there would be no elaborate social process of distribution giving rise to a peculiar type of knowledge. Modern production requires the concerted efforts of many individuals, and rarely does the producer see before him the completed article, or have tangible evidence of the exact degree to which he has contributed to the values of manufactured goods. Even the most solitary savage, making his bow and arrows in the seclusion of a hidden cave, could hardly be said to have produced these without social assistance, if not in the gathering of the materials, at least in obtaining the ideas controlling their manufacture; and certainly when

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produced these implements were of social service. The credit for the production of even the simplest article of wealth is diffused among numbers of people, and no one can say he is the sole producer concerned. The privilege of sharing in the value created by many is accordingly asserted by many, and the stream of wealth is tapped at many points by rule of law, custom, and agreement as well as by fraud, strategy and imposition. Property has a social origin and a social destination.

A complex social mechanism for the interchange of commodities has been developed along with socialised production. The man who raises more wheat than he can use makes use of the social machinery for the interchange of goods when he sells his excess wheat and buys in turn coffee or nails. Ships, freight cars and banks are called into existence because of the need of the primary producer to exchange his goods for the products of others. Transportation and banking are activities not less important than those represented by mines and farms. The producer must of necessity rely upon the activities of others for transportation and allied services. It is to be noted, however, that in the losing hold of his goods, as he must, the producer is exposed to evils, especially that

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of not securing in return for his goods their fair equivalent.

The importance of suitable adjustment to distribution, of adequate participation in what has been produced, is greater than that of adjustment to mere production. One must be in adjustment with the social process of distribution, he must share in the product, or he perishes. One can live without being a producer, but share in distribution he must. Maladjustment at this point is beggary or death.

Adjustment to the distributional phase of one's environment is effected by the application of a type of knowledge radically different from that concerned with production. Indeed one may be adept as a producer and so inept in distributional knowledge that his existence is threatened. Consider the skilled slave as an example, or the peasant. Possessing fair productional knowledge, these suffer exploitation because of lack of the type of knowledge which functions in distribution. The peasant, the slave, and expropriated workers, ancient and modern, represent knowledge of how to produce but lack of knowledge as efficient distributees. On the other hand, versed in distributional knowledge, individuals may substitute themselves in the place of deserving producers and

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maintain themselves in advantageous adjustment to wealth.

Knowledge makes the difference between the effective producer and the individual incapable of production, and likewise special knowledge distinguishes the efficient distributee from the inefficient distributee. It has been the fortune of humanity that distributional knowledge should have been often restricted to classes, while in turn productional knowledge has also been a class possession. But since to share in wealth is vastly more advantageous than merely to produce, the classes characterised by distributional knowledge have uniformly fattened and developed while the highly deserving producer has historically gone scantily fed and poorly clad. It avails little that one be an efficient producer unless he be qualified as a distributee. To qualify as such he must acquire a special type of knowledge.

This type of knowledge or experience is that which makes one a successful taker of wealth as distinguished from that which enables one to be a successful maker or producer. It is that which functions in the securing of advantageous prices for labour or commodities, incomes, salaries, revenues and grants. This type of experience is associated with the taking of profits,

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whether competitive or monopoly profits, rents and interest. The doctrines built up with reference to the descent of property by inheritance are an important phase of distributional knowledge and inure to the benefit of the classes who already possess wealth. The network of laws guiding the destination of wealth, and governmental methods, are a part of the body of distributional knowledge.

A peculiarity of distributional knowledge is its traditional character. The sanctity of age attaches to the customs, laws and constitutions embodying the maxims and experiences forming the property code. This type of knowledge functions for the benefit of individuals often without activity on their part. Long established distributional experience makes the casual heir or the scion of privilege its beneficiary without initiative on his part. The king, the nobility, the aristocracy, the law-makers and men at points of economic strategy throughout society continue the practices of successful distributees of the past, impress upon society the rules under which distribution has heretofore taken place, and upon occasion readjust the rules for their advantage.

Thus it has come about that there is no fixed relation between one's productional efficiency

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and his efficiency as a taker or distributee. In many cases the eminent producer is the eminent taker. In a multitude of instances, on the other hand, the individual receives only enough, under the law of wages, to enable his continued production, regardless of the extent to which he contributes to the total of wealth production. Wages bear no fixed relation to the profits of a business. In fact the separation of production from distribution is evidenced by the absence of any attempt to appraise exactly what each producer really adds to the total of wealth. The parasite, complete or partial, may accordingly take more wealth than efficient producers.

Distributional efficiency implies a good knowledge of popular psychology. A recent writer ¹ notes the surpassing skill with which upper class Englishmen assert their claims to privilege by the merest shading of behaviour and subtle revelations of expectations of deference. A delicate effulgence of personality compelling subjugation is one of the priceless inheritances of wealth-taking classes. The momentum acquired at an earlier time by means of pretentious establishments suffices to compel a respect, in non-democratic countries at least, conducing to perquisites and distinct allowances from the

¹ Collier, Price: "England and the English."

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social wealth. Even in America, courts in passing upon the validity of contracts to which wealthy infants are a party and in determining the sufficiency of allowances for minors and others recognise the former state of the individual and his accustomed scale of living as guiding principles. A nobleman arrested in Chicago for vagrancy made what was historically a legitimate plea when he argued that being a nobleman he was exempt from work.

Long experience has taught successful distributees the value of show, trappings, elaborate garb, ceremony, hauteur and conventional sanctions as related to the facility with which incomes may be enjoyed and adjustment to the social process of distribution maintained. Such experience has crystallised into quasi esoteric knowledge distinguishing eminent takers.

Under modern conditions the most efficient distributional knowledge is perhaps that functioning in the operation of trusts and monopolies. The organisation and inwardness of great corporations have been relatively obscure to the general public while inuring to colossal fortunes of small numbers. Even when trust organisation is understood in outline by the rank and file of producers, ignorance of how to proceed to correct and equalise the flow of so-

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cial wealth leaves the distributional experts, the trust promoters and their attorneys, in practically undisturbed possession.

In the ordinary pursuits of a complex society many illustrations of the critical nature of special distributional knowledge will occur to one. The banker represents a type of knowledge which brings almost certain rewards often quite in disproportion to services rendered. He is the beneficiary of occupational experiences and an expert in applying a type of knowledge to income purposes. The middleman, while performing a legitimate function under present conditions, would find his occupation gone did the primary producers command sufficient distributional knowledge, did producers know how to organise. Milk producers, to whom by any fair appraisal of services and risks should be allowed a major share of the price to the consumer, receive quite commonly in the cities some two cents to the middleman's eight cents of the ten cents paid by the consumer. This discrepancy registers the ignorance of distributional knowledge on the part of the milk producer and its possession by the middleman. Inability to get one's price measures his ignorance of the knowledge of distribution, or the ignorance of the class to which he

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belongs and by whose ignorance he is bound. There can be little question as to the contributions to the wealth total made respectively by a competent president of a great state university and a supreme court judge in the state of New York. Each, inheriting the results of distributional knowledge associated with the law or with teaching, profits as judge or suffers as academician to the extent of thousands of dollars a year by comparison, regardless of their contributions to production. The attorney who affixes a large red seal, made unnecessary by statute, because his client will more willingly pay a sizable fee for an impressive document, is an example of a type of exploitative functionary. Rake-offs, undue profits, excessive fees, and trade tricks, collateral oftentimes with legitimate services and values, attest the disjunction of the producer's and the distributee's knowledge and prove the peculiar advantages of the latter.

Poverty may be caused either by lack of productional knowledge or the lack of the knowledge of distribution. Frequently it is the latter. To know how to produce is not enough. One must enter into the special knowledge which qualifies for participating in the division of values if he is to avoid poverty.

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Inasmuch as all the rules and practices of distribution rest ultimately upon government, existing by authorisation of law or tacit permission of lawmaking bodies, the test of qualifications with reference to the knowledge of distribution may fairly be said to be one's civic enlightenment. Knowledge of how to vote mechanically is now universal, but knowing how to produce desired effects by use of the ballot is in its infancy. The election of false leaders, the lack of control over leaders once chosen by ballot, the indirectness of expression of opinion by the personal ballot, and the indifference which prevails as to legislation in progress alike attest a widespread ignorance of the relation of government to distribution and general welfare.

Indeed so undeveloped is the faculty concerned with the central means of control over distribution, government, that in large numbers of instances, involving hundreds of thousands of voters, the strike is preferred to the effective means of correcting faulty distribution, that of governmental action. The individual or class suffering maladjustment to environment expressed in terms of income should strike, not blindly or violently as so commonly occurs, but rather by means of special

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knowledge applied through political channels to the general mechanism of distribution, the faults of which they seek to correct. To strike at the polls would evince a higher degree of economic insight, inasmuch as laws and customs amendable by law, comprise the code regulating the apportionment of wealth.

Enormous wealth centralised in few hands, concomitant with extreme poverty as seen in slums comprising half a city's population; vast sums bestowed at the caprice of owners in the disposition of which the public has no voice; the expropriation of great numbers, and swollen fortunes; the intrusion of the agents of wealth in legislatures, courts, and the press; the testimony of probate courts showing the small minority leaving estates of any value; the increasing amount of tenancy in city dwellings and upon farms; the reduction of great numbers to profitless salaried and wage positions—these are evidences of ignorance among producers with reference to the knowledge functioning for distribution.

Distributional knowledge in part is knowledge of law and how to effect changes in the laws. It includes knowing how to organise bodies, how to conduct meetings, how to make parliamentary motions, how to draw bills, and

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to direct legislation. Economic history, sociology, civic and political science, psychology, economic history and theories, constitutional law, comparative legislation, and jurisprudence represent this type of knowledge. A very large body of knowledge essential in the distributional relationship is that to be derived from the inner workings of concerns and offices indentified with large incomes. The gazetting of the actual incomes received by various distributees and more exact knowledge of how incomes are actually secured, by what services rendered, would tend to democratise society in economic relations. At present the incomes of the public employé, the teacher and the postal clerk, are listed for general perusal, whereas the incomes, large or small, of numbers, drawn likewise from the total of social wealth, are unknown even to the tax assessor. The revelations as to income which would follow an income tax would form no unimportant part of the information needed to equip the public for dealing with the question of distribution.

The knowledge of distribution would be imperfect indeed if it failed to include any science that might be organised as to the reasonableness of unequal incomes. So far as possible,

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principles consistent with a high level of production and general welfare should be formulated regulating the flow of wealth to individuals and providing for such inequalities of income as social welfare demands. However incomplete such a formulation might be, it could not be less acceptable than a traditional code that directs a lordly current of income to an immured imbecile, commands the efforts of thousands of underpaid department store girls in behalf of a brace of adolescents, and surprises collateral heirs with the riches of a decedent who was but faintly aware of their existence.

The importance of distributional knowledge is proved by the appointment of a country life commission by President Roosevelt, the purpose of which was to inquire into the reasons for the low standard of living and relative submergence of the American farmer, representing over one-third of the national population. Here is a class of primary producers, never charged with lack of industry or avoidance of hardship, at such economic disadvantage that their condition becomes the concern of publicists. While the farmer was found to lack to some extent in productional knowledge,

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it was clear that he chiefly lacked in making himself felt as entitled to distribution. Prices both upon what he sells and what he buys have been set for him by others, naturally to his disadvantage. Only civic and political insight can avail to lift him from semi-serfdom, unless he be lifted through the charitable efforts of those who identify his prosperity with their affluence.

A test of one's productional knowledge was found to be what one can make, what goods he can prepare for use, what he can do to increase the world's supply of commodities. A test of one's distributional knowledge, or a test of that of the class with which one is identified, is rather how much one's income is, how much wealth he receives, how much he possesses. Rarely indeed would the amount received exactly measure the amount produced, while discrepancies would be the rule.

It is not to be inferred that knowledge of both production and distribution are not found in the same individual. Fortunately this is very often the case, indeed almost inevitable. The knowledge of the expert bank burglar, as such, is that of distribution, and his whole career might illustrate complete exemption

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from production. The slave, on the other hand, would exemplify production only. Between such extremes the various classes represent the active employment of the two types of knowledge in differing combinations.

IV

KNOWING HOW TO CONSUME

SPECIAL types of knowledge are organised, as we have seen, about the social processes of production and distribution. To a remarkable degree the knowledge which exists under the various sciences may be referred to economic processes. Let us pursue the classification of knowledge by economic principles still further and try to discover whether or not there is a fairly well-defined group of experiences preserved as conscious knowledge related to the final link in the economic chain, consumption. Any individual sustains a multitude of special relations to his environment, but perhaps practically all these many relations may be referred to one or another of the three economic categories. Do not production, distribution and consumption comprise all one's relations, especially if by consumption we understand the individual's relations to all that may be enjoyed, appreciated and made use of? If we include as consumptional knowledge that which

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tends to maintain the consumer in fit physical and mental condition for the consumptional relation to environment, there seems little chance of error in applying economic terms in the classification of experiences.

Wealth is produced, is distributed according to social experience or knowledge, and the knowledge underlying skill as individual takers, and passes to its final stage in consumption. It is obvious that efficient consumers must employ an extensive amount of knowledge in the supreme relation of use. The use of things produced surely must imply the application of a multitude of past experiences existing as organised sciences or as informal information.

The importance of such knowledge may be inferred from instances where it is lacking. The ignorance existing among primitive peoples with respect to the use of articles consumed with appreciation by the civilised is in point. Works of art, musical instruments, complex tools and mechanisms, soap, literature, and various foods of civilisation have no meaning or use for the native of Queensland or Borneo. The aborigines lack in experience for the consumptional relation. A similar shortage of experience is revealed in cases where

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men who perhaps have been notable producers and immense takers of wealth find themselves unable to enjoy widely. One may be a trained producer and an efficient taker of wealth and yet be a highly inefficient consumer. The case of the retired farmer is often cited as an example of an individual lacking in knowledge of how to consume. After a lifetime spent in creating and accumulating a competency, he often finds his range of enjoyments is small indeed.

Primary consumption has to do with food, clothing and housing. The need of special knowledge to enable one to adjust himself properly to these cannot be questioned. The food relation covers many particulars, ranging from table manners to scientific dietaries. Education with reference to the standard of living bears directly upon quality and kinds of foods, the texture and fashions of clothing, and the sanitation and conveniences of homes. Maladjustment to the consumptional relation in these respects is revealed in ill-cooked, unwisely selected foods, unhygienic and uncomfortable clothes and poorly appointed houses, coexisting with the material means of betterment. A lack of consumptional knowledge frequently appears in connection with produc-

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tional and distributional inefficiency, but consumptional ignorance may easily be distinguished.

This type of knowledge is particularly involved in maintaining physical well-being. Good health and high bodily efficiency afford an indispensable basis for happy correspondence with environment and appreciation of whatever kind. The prevalence of disease and untimely death, the mistreatment of the body by neglect, medicines or overstrain, faulty regimen and aches and pains argue ignorance of knowledge of prime importance. Hygienic information accordingly ranks high in the consumptional relation.

The requirements of rational family life are met best with the assistance of knowledge gleaned from cultured and well-ordered family experiences. It is probably not extravagant to say that but a mere fraction of the total number of families are at all exemplary in their standards or would not profit immensely by acquiring different ideals. Certainly in the care of the child ignorance prevails widely, and the disastrous blunders of even well-intentioned parents in engaging the respect and confidence of their children and shaping them into admirable characters are illustrated in every com-

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munity,—often in families prominent for efficiency in other lines. The science of rearing children physically and mentally comprises, in view of the critical relation of family life to individual welfare, either of parent or child, wife or husband, no slight portion of the knowledge which is particularly concerned with consumption.

In the spending of money there is required an amount of consumptional knowledge too often lacking. Consider the number of occasions during a year when one buys something, especially if charged with the expenditure of family funds. How often indecision and worry attest the lack of such information as makes for the wisest purchasing. The commonest articles of purchase, as food and clothing, make demands upon one's store of information which he is fortunate if able to meet. The extent of unwise or ignorant purchasing is very large, few consumers being well prepared to buy with knowledge of materials and cost of manufacture. Faulty taste claims victims by the ten thousand and even gives character to manufacturing enterprises. It was Stevenson, I believe, who said he could better endure the paying of too much for a thing than the finding out that he had bought something he did not

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want. The number of things bought which one by any cultivated standard of taste ought not to want is not small. Grant that tastes differ, so do opinions on any subject until the unanimity of the wise is attained. For some divergence of taste there is good reason, but for the avoidance of crudities and often expensive barbarisms in material possessions can it be doubted that there is need of the development and popularisation of a science of what to want and what to buy?

Such knowledge as bears upon judging the worth and excellence of objects viewed or purchased, whether works of art or millinery and textiles, architectural plans or plush upholstery, is consumptional. From one point of view, civilisation is the acquiring of wants, and the character of civilisation is determined by what wants have precedence. The knowledge which illuminates wants and guides in deciding what wants to satisfy and what wants to modify, resist or promote, evidently is of the most fundamental character.

Especially in connection with avowed recreation and the pursuit of happiness is the need of cultural guidance experienced. The "work conscience" characteristic of not a few faithful producers, a conscience which makes holi-

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day seem unholy, demonstrates how completely consumptional interests may be atrophied, it matters not whether by influences of puritanism or as a result of occupational concentration of attention. The ideal of enjoyment belongs to consumptional science. To the child play is the main business of life. It might well be part of the main business of everybody's life, all becoming free in spirit, unhaunted by self-reproach in hours of diversion.

Play and recreation are social in their nature and involve relations with others. Selfish enjoyment is almost a contradiction in terms. Whatever knowledge bears, then, upon fitness for social relationships forms part of the total of consumptional science. How to dress acceptably, how to converse with profit, how to deal pleasantly with others are included in that body of experiences which further adjustment to consumption.

A special knowledge underlies appreciation of literature, music and art. One must be trained to appreciate. That knowledge which effects an understanding of the finer things is peculiarly that of consumption. The range of human enjoyment is from crude appetite to things esthetic. Many a residence, landscape, town, city, back yard and railroad station are

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to be found which might be transformed under widely diffused knowledge qualifying the public to appraise the beautiful and resent the ugly. As with material objects so with thoughts and sentiments. Certain types of published matter would lose their hold were knowledge of what to read and admire more available.

That knowledge is consumptional which bears upon the enjoyment of utilities of any kind. The more highly prepared one is to utilise and enjoy a variety of goods and values the more fully he represents sufficiency of this knowledge. The consumption of goods is especially characteristic of leisure and leisured classes, who are above all others equipped with experience as consumers. Recreation and retirement, holidays, vacations and periods of freedom from productive labour are particularly identified with the consumptional process.

The inefficient consumer cares little about many utilities and is characterised by meagre tastes, few desires, slight discrimination among values and non-appreciation of the arts which adorn leisure and thrive in luxurious surroundings. The man who has few interests to fill in his leisure periods or engage him in joyful exercises may be classed as lacking in con-

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sumptional knowledge, no matter how able a producer of wealth in his working hours or how proficient as a distributee.

Consumptional knowledge may abound in those who produce little and have little. The cultured hobo serves for illustration. While in many cases there is a dearth of consumptional standards, in other cases the individual has more desires than he can gratify, desires which he could gratify with more wealth. Whether in all cases with increase in wealth the individual would increase his consumption wisely is open to question. While the consuming power is indefinitely large in a community, ever beyond the power of available wealth to satisfy, it does not follow that were wealth afforded for the satisfaction of wants, consumption would follow well-chosen lines. There is need of education for wise consumption. Long experience on the part of favoured classes results in adroit consumption. Below the level of riches, the possibility of increasing happiness by supplying individuals with consumptional guidance is unlimited, and even among the wealthy classes the need of improving standards of living and improving taste is far from negligible.

The efficient consumer has taste and knows

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values. He goes without some things and buys only what satisfies and enriches life. Intoxicants and ear-rings, inartistic furniture and bad music are pitfalls of those who have suffered under-development in appreciations. How grievous may be ignorance of the good choice and use of things is well illustrated in the case of the reservation Indian, whose purchasing is ruinous and whose scale of values is inconsistent with his welfare. So meagre has been the maintenance of large numbers in society that exemplary consumption, neither weakened by poverty nor by omissions of culture, finds too little realisation.

In seeking out those bodies of knowledge which have historically underlain consumption one naturally looks to the information associated with eminent consumers, the rich. And we here find emphasis placed on good manners, polite learning, miscellaneous information, knowledge of leading families, kings, military leaders, and history with a genealogical bias. Certain languages, as French, associated with the fine arts and romantic themes, and implying travel in foreign lands, rank high. Acquaintance with sports and games and recreational records and anecdotes figures in leisure class knowledge. How to

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wear clothes of quality, dress punctiliously and gradedly for occasions, as appear at courts, manage subordinates, converse wittily and avoid irregularities of behaviour known as bad form are items in the trained consumer's code. The training given not long since in a girls' school in the South consisting of learning innumerable quotations from authors for use in conversation was decidedly consumptional.

Much of the experience developed historically among the upper classes commends itself to good sense and its possession may be counted a consumptional ideal for all. Because of the inherent worth of upper class consumptional knowledge or because of its critical importance for gaining admission to aristocratic circles, education has made much use of this type of knowledge, especially in the higher schools. Quite apart from the uses of consumptional knowledge for social preferment, the advantages of knowing the rational and satisfying use of wealth, in large or small quantities, are transcendent.

It may appear to do violence to facts to refer moral truths to economics for reclassification. Moral experience or knowledge arises from the individual's contact with environment along the line of the great economic relations.

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There is an ethics of production, an ethics of distribution, and no less an ethics of consumption. Thou shalt labour, is productional morals; thou shalt not steal, is a distributional precept; thou shalt not kill, or interfere with another's enjoyment of wealth, is part of a moral code based upon consumption. Whatever interferes by intent with another's fitness for the enjoyment of wealth and welfare, whatever produces maladjustment in the consumptional relation to material commodities or the higher values of beauty and contemplation, violates a code of ethics referable in the last analysis to an economic basis. Moral instruction is demanded lest perverse happenings occur to disturb the individual in his primary economic relations. The perfection of the individual's adjustment in these relations to environment gives the cue to evolutionary morals.

Indeed a higher than the current moral code may emerge when not only is the individual's right to the cruder features of consumption recognised, but his right is honoured to participate in the charms of landscapes, now only to be reached by expensive travel, of music confined to loci of culture, and art stationary in far cities. The ethics of maximum consump-

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tion would supply deficiencies in the present code.

While certain kinds of knowledge function in more than one economic relation, in consumptional science may be included poetry, music, hygiene, fiction, foreign languages, dietetics, house planning, geography, astronomy, and in general those classes of facts that enable one to use things well, maintain proper standards of dress and deportment, satisfy curiosity, and enter into the higher values in which an increasingly complex civilisation abounds.

The peculiar relation of consumptional practices to public welfare lays emphasis upon knowing how to use things without harming others. The criminal and the drunkard would be harmless if they lived on Crusoe's Island. Vice, crime, intolerance, inebriety, and gambling imply low ideals of consumption. The social effects of what one does by way of enjoyment are not to be lost sight of, indeed they are exactly what one should keep in mind.

And not only in negative ways may consumptional science be of public benefit, but also in the joint undertakings of public libraries, parks, playgrounds and the common utilisation of facilities which public ownership affords and promises. One does not need to own

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a thing to enjoy it. Nothing is detracted from a beautiful landscape that thousands besides oneself have access to it. The desire for exclusiveness of enjoyment or possession is doomed to give way to the rising ideal of the widest possible use of wealth and to the new psychology of service.

PART TWO
THE DIFFUSION OF KNOWLEDGE

The curriculum is but one of several agencies for the diffusion of knowledge, and it is therefore well to note the characteristics and efficiency of various other instrumentalities before dealing more particularly with the curriculum itself, to the end that the province of the curriculum may be defined more exactly and ways noted in which the curriculum may supplement other agencies or correct their defects.

V

THEY SAY

BEARING in mind that knowledge is simply experience, functioning mainly if not wholly for the adjustment of the individual to the social processes of production, distribution and consumption, the need of a ready command of knowledge effecting suitable relations to environment at once suggests itself. Knowledge to be valuable must apply at points of need and continue a favourable adjustment or cure maladjustment to environment. As soon as experience functioning for adjustment becomes predetermined it sinks into relatively unconscious habits, and finally into instinctive reactions and automatisms. The type of experience with which we are now concerned is that which exists as consciously retained and consciously employed impressions and inferences.

The utilisation of such knowledge presupposes a system of retention, both social and individual, and a system of convection or diffusion of knowledge to points of need.

Social retention comprises those means by

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which knowledge is handed down from generation to generation. In this process oral tradition and written records have been effective. Likewise monuments, public works, ancient roads, edifices, statuary and implements, fossils and relics of all sorts serve to convey information of earlier times. One of the problems of civilisation is to perfect the means of social retention. Books hold first place as instrumentalities of social retention. By the republication of knowledge as paper and bindings decay, and especially by republication accompanied by critical winnowings of materials most valuable to posterity, and the making of compendiums and digests, the essentials of knowledge gleaned in the past may be kept flowing indefinitely.

Retention with the individual rests upon the power of memory, whose laws and limitations are fairly well understood. Memory is the central feature in the individual's mental equipment, not only in that it supplies in numberless cases the former experience serving at once to put the individual in correct adjustment, but also in that the reasonings necessary for adjustment to novel situations employ materials supplied by memory from former experiences.

But no matter how broad one's direct experi-

They Say

ence with the physical and social world may have been, the requirements of modern life demand a knowledge far in excess. Possibly in the most primitive state man needed to know little not accumulated through his own direct experience, but in a complex society the knowledge that may be gained by experience in the narrow sense of the term is hopelessly inadequate. To one's direct experience must be added essential experiences from millions of alien situations. What others have learned by direct experience furnishes the bulk, it may be, of what any one should know.

This need of sharing in the experience of others gives rise in turn to the necessity of effective methods of diffusing knowledge. A new situation presents itself. The individual may proceed in this order. He first asks, what experience have I had which will show me how to act? Failing of a specific experience which will guide by duplication, he then inquires, what experiences have I had containing elements or principles applicable to this new situation? At this point he leaves the realm of his former direct experience, passes over to the experiences of others, and seeks for a case or rule of which he has heard or read which will solve the difficulty.

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The diffusion of knowledge either by educational institutions or by other agencies would be beside the mark were it not for the inadequacy of individual experience or the infirmities of individual memory. Individual limitations, however, coupled with more exacting requirements upon one than the world has ever before known, compel increasing attention to the agencies for the convection of knowledge to points of need.

Of the agencies for the diffusion of knowledge common report or informal communication between man and man is ancient and fairly effective. The parent shows the child how to carry on the arts of life and transmits much of his stock of information in the form of advice, tales, admonitions, anecdote and narration. Social intercourse sets free a considerable volume of essential knowledge along with much that is purely repetitious or revived for the exigencies of conversation. The meeting of strangers results in additions to one's stock of ideas and prepares one for adjustments represented by the stranger's travels and exploits. Whenever two or three are gathered together, there may be observed the process of simple communication, which, while abounding in unimportant detail and faulty induction, serves

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to flush the nooks and crannies of society with ideas and useful precepts.

Limitations to the efficacy of simple communication are set by one's social opportunities and by class lines. Class knowledge percolates slowly from group to group, and a great amount of knowledge common to occupations and social sets never finds its way freely throughout the masses, due to lack of social contact of the representatives of the various groups.

Within one's own group, touching points of competition, dissembling and secretiveness prevail to a degree. Competitors converse profusely with one another, and by preference with one another, but the knowledge which one holds essential to his advantage in competition for trade, votes, reputation or income, rarely plays a part in the information rehearsed. Altruism, it is true, dictates that helpful information be generously published, but there is a concealed residuum. The broad view that whatever helps another helps oneself rarely prevails fully over the desire to monopolise kinds of information identified with one's survival in competition. Sometimes there is revealed dislike lest occupational knowledge become a common possession. It comes about that strategic

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knowledge is kept in the background while apparently unreserved utterance occupies the stage.

The informality of simple communication lends itself to jumbled impressions and the accumulation of inferior knowledge. By a singular agglutinative process *fama* distorts and amplifies until the truth is lost or hidden under mounds of rubbish. It is against all the instincts of dramatisation and excitement that one should not make a good story out of any material at hand. The fiction-weaving impulse vitiates many reports that if true would be less interesting. Learning to brace oneself against first reports and general rumors becomes accordingly one of the first lessons of a useful life.

But whatever other agencies for the diffusion of knowledge may be set up, the service of simple communication remains fundamental in promoting adjustments. The word dropped at the right moment, the mother's warning to the child, the friendly suggestion, the brief-direction to workers, the cry for help, as particulars in the mighty stream of the social interchange of ideas, illustrate how large a part in the learning process is played by simple communication.

VI

PRINTERS' INK

ANY not convinced of the omnipresence of the newspaper by the printed page which appears on every living-room table, in barber shops, on store counters, and is thrust under one's eyes on train and street, or wrapped around one's legs by swirling winds, need only consult the thick volume comprising the American Newspaper Annual to be impressed with perhaps the most pregnant fact of modern life, the ubiquity of print. Tens of thousands of daily and weekly newspapers with a combined issuance of many billion copies a year bombard the public with such a mass of printed matter as the world never before knew. When one considers that a small daily with a circulation of 20,000 prints and distributes in the course of a year over 7,000,000 papers and that the moderate sized metropolitan daily sends out from 75,000,000 to 100,000,000 newspapers a year, the total newspaper output assumes proportions unwieldy if expressed in figures

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and hopelessly beyond vivid comprehension. Morning and evening, day in and day out, the newspaper makes its way to the understanding. A considerable number, especially in cities, see more than one newspaper a day while there are few even on the remotest farm or ranch who do not read a weekly paper. Many read little else than newspapers.

In view of the vast office of the newspaper as an intellectual medium, it is well to note its merits and defects as a knowledge-diffusing agency. The newspaper is a teacher, a preacher, a school. It instructs and informs. The public is its pupils and parishioners. It even supersedes conversation and simple communication, as witness the irritation of a newspaper reader disturbed by a question, or the absorption in the morning paper of the man of ambiguous manners who reads on indifferent to his wife's attempts to engage him in discussion. So forcefully has the newspaper appealed to the public that an observer¹ believes the newspaper to have imposed upon the American people distinct mental traits, which he characterises as a "newspaper intelligence."

The newspaper has unparalleled efficiency so

¹ President Schurman of Cornell University.

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far as securing the unremitting attention of a very large number of pupils, the public. Neither the church nor the school equals it in either particular. It takes no vacations and its classes are never dismissed. The newspaper pursues even when one would flee. It exerts constant pressure, and by cheapness, appeal to human interests, and commercial tactics leaves no stone unturned to make and hold readers.

In manner of presenting information the newspaper has even set standards of efficiency. The cumbrous style of writing is discarded for terse language and graphic description. The general change to direct style in literature is no doubt largely traceable to newspaper methods of expression. Composition that cannot be understood at a glance and by readers untrained in mental grasp gives way to a style of open writing, especially illustrated in head lines and advertisements, which has conferred some benefits upon expression in general, rendering Milton's "Areopagitica" unacceptable as a model of English. Regardless of the kind of knowledge dispensed by the newspaper, it has contributed vastly to ideals of universality of diffusion.

Many causes no doubt conspire to determine

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what the newspaper diffuses. No one talking to a child would deal in knowledge for the understanding of which there had been no previous preparation or was of a nature not readily understood. Whether there is not much knowledge which might be imparted, but which is commonly thought to be too difficult to be conveyed, is a question that need merely be referred to here; the fact remains that if one is to engage the immediate attention of child or reader, he must offer materials of superior attractiveness. This the newspaper does, and accordingly the nature of the material printed is largely governed by the real or supposed capacity and interests of the particular newspaper's constituency. The newspaper reader is less amenable to solid instruction than the pupil in a classroom, for upon slight umbrage the former cancels his subscription or buys a different paper, whereas the latter is held to instruction, in the lower schools by the attendance officer, and in the higher institutions of learning by compulsions that may not be disregarded. The newspaper reader is held to his lesson by the application of the doctrine of interest elaborated into a demoralising coddling, a fact that greatly limits the teaching value of the press. Whether the editor believes in the

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worth of the matter printed or not, if the readers of the paper are believed to fancy reports of distant scandal, the personal habits of distinguished people, the engagements of young women one has never known, or the bearing of a murderer on his way to execution, accounts are provided. In short the newspaper concedes to the prejudices and ignorance of the reader with a subservience demoralising to its value as a mentor, provided its publication is not dictated by other than purely commercial motives. To the extent to which readers want what is good for them all newspapers diffuse knowledge of unquestioned quality.

The attempt to please as wide a circle of readers as possible leads to the inclusion in newspapers of materials miscellaneous and of all degrees of importance. The news is as broad as readers' interests in what is going on in the world. Naturally in the publication of an enormous volume of information there must be much which has but the slightest value, ranking with mere perceptive knowledge of a repetitious kind. The swollen volume of the news is largely due to the repetition of typical cases. The newspaper item relative to the prominent citizen reappears in slightly varying form year after year—never too often in

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the eyes of this influential subscriber and patron. The accident or loss by fire is discursively treated and a bulk of news is attained which in part balances the advertising sections. The sense of climax is fed by special articles forecasting with circumlocution or dramatising casualties and criminal trials.

From the standpoint of evaluated knowledge, when one boiler explosion or murder enters one's stock of knowledge, other cases, unless embodying new principles, are mere junk except to persons specially affected. In the knowledge diffused by the current press repetition of types occurs interminably. For this reason a besotted reader may remain substantially ignorant though full of information, and *per contra* one may get along very well, once grounded in knowledge, if he rarely reads a newspaper closely. The value of newspapers aside from the knowledge-diffusing function is not under discussion. As sources of entertainment and business mediums newspapers represent services not involved in a comparison of the newspaper with other agencies for the diffusion of knowledge. The timeliness of the information afforded is an important part of the service rendered.

The idea of news is that of the report of

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happenings rather than the exhaustive treatment of causes or the search for principles. One will meet thousands of references to automobiles, but look in vain for a scientific description of the gasoline motor. Innumerable allusions are made to crime, but for studies of the causes of crime we must look to the criminologist, who deals with crime with a deliberation impossible to the reporter intent on copy. The obvious aspects of multitudes of situations are immediately reflected in the newspaper, but for inductions from data one must seek elsewhere. Usually the startling and more objective features of happenings are taken up in the newspaper. The failure of a bank is announced in bold type, but the history which lies back of this event, with its fulness of economic, personal, institutional and occupational data and inference, can find little place in the hasty recital of bankruptcy jostled by items thrust upon the editor's desk from all parts of the world. To the student and specialist must be referred the fuller analysis of events which in their surface manifestations are news and in their deeper meaning science.

The lack of system characterising news makes the newspaper a faulty teacher. The mind of the scientist represents an orderly arrange-

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ment and structure of knowledge. To perfect this arrangement in the learner's mind requires reasonable attention to the way in which ideas are assembled and presented. The proper association of ideas is of extreme importance. Mere masses of facts precipitated upon one's mind, no matter how interesting separately, have less instructional value, being less perfectly retained and assimilated, than when presented in orderly sequence. And indeed the habit of seeing particulars as a system, developed by receiving knowledge in that form, distinguishes the trained mind from the type of scatterbrain suggested by the term "newspaper intelligence." The unwisdom of employing the newspaper as the main source of one's mental materials is evident. The effects of showering quantities of miscellaneous and unorganised ideas upon immature minds, whether young or old, are from this standpoint not desirable.

In the generosity of news offered there is to be found much that makes for increased production of wealth. Market reports, weather prognostications, allusions to improved methods of production, descriptions of new inventions of use on the farm or in factories, items facilitating business or urging co-operation,

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and the warnings implied in accounts of accidents, faulty constructions, disease, and idleness unite to make the newspaper in a sense a useful manual of knowledge bearing upon production. Of course the connected information underlying a complete trade or profession is never more than merely suggested.

The culture popularised by the newspaper varies with particular publications and shows a wide range of standards. Both intelligent and unintelligent consumption are promoted. Accounts of the diversions of people who are noted rather for conspicuous than rational consumption tend to set up practices inconsistent with the best use of wealth. False ideals of enjoyment are thus encouraged and simpler, saner pleasures in a sense stigmatised. The lack of individuality shown in servility to kaleidoscopic fashions and the awed submission to the reports of what "they" are doing or thinking are unchecked by the newspaper's influence. In the field of standards of living the press supplies a heterogeneity of example without real guidance. However, newspaper reading tends beyond question to raise consumptional ideals. The knowledge that some one else is enjoying a vacation, going abroad, visiting in the country, sending his boy to col-

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lege, purchasing a piano, riding in an automobile, and installing a hot water heating system spurs to a higher standard of living. The most backward individuals and communities are those by whom newspapers are little read. Even where wealth is not possessed to put into effect the higher consumptional ideal, the newspaper reader in downright poverty has a surface acquaintance with practically all the means of spending money and is no mean critic of the manner in which large consumers dress, travel and eat.

Again, in the field of distribution, the newspaper exhibits great catholicity in its columns. Here the newspaper in fact performs a function not performed by the church and very slightly attempted by the schools, that of informing the public on political questions. Subordination to the interests of office seekers and private individuals limits the service of the press in this particular, but what one paper suppresses another may publish, and the civic instruction of the public comes more largely from the press than from any other source. The newspaper tells who is elected to office, reviews legislation, comments on political situations, excoriates policies and illuminates the workings of government. Current progress in

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understanding political conditions and lines of reform rests quite fully upon the notable efforts of the press to diffuse civic knowledge. The newspaper is the citizen's library for the understanding of government.

An increasing amount of the esoteric knowledge of which the extremely wealthy have been the beneficiaries has been made known, with the result that society hangs on the verge of reorganisation with reference to the control of corporations and the amelioration of slum and pauper conditions. The effect of knowledge is conduct. The mere publication of a fact leads to so many results that to the agency making the facts known must be credited a primary service in improving the conditions under which distribution takes place.

The frequency of issue of newspapers and magazines leads the public to look chiefly to them for reports of current political developments. These publications naturally become the principal means of distributing political information and their influence is correspondingly great.

The knowledge imparted by the school becomes effective when the student arrives at the age of active participation in the life of the citizen, but that dispensed by the press in the

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morning may become a rule of action in council or congress, at the polls or on the street before nightfall. With the fuller and more impartial treatment of political themes the press could hardly have a rival as a distributor of civic information.

VII

THE SPECIALIST

MUCH of the most important knowledge is confined to the mind of the specialist. Whether this is due to the inadequacy and inefficiency of other agencies of diffusion or the excess of vital knowledge over the capacity of the single brain may be a question. In view of the fact that the world's supply of important principles is really small, it might seem that the specialist exists to afford personal services rather than as an indispensable repository of learning.

One may specialise in either useless or useful information. Prodigies of curious learning who flounder in the important adjustments of life are an example of the former, and the physician, lawyer, architect, and pharmacist are examples of the latter class. The specialist usually does things for pay, applying in the operation knowledge of at least partially esoteric character. In so far as his services involve skill due to special training resulting in habits, the specialist represents proficiency as

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distinguished from information. One attorney might, for example, employ another to do what he himself might do if he had the time, or a person well informed as to pulling teeth might not urge his services in this occupation from lack of practical experience which the dentist possesses. However, the specialist fairly represents assortments of knowledge with which the layman is rarely acquainted under present conditions.

A double tendency appears with regard to the knowledge identified with the specialist. Knowledge subject to specialisation seems, on the one hand, to flow increasingly out into the stream of common information, but on the other the increase of information along certain lines seems to maintain the specialist's reservoir of knowledge at a rather high level. The appearance of preventive medicine and public health officers tends to popular diffusion of medical knowledge, but possibly the advances in medical information will result in accumulations which by no ordinary means may be made a public possession. Certainly the specialist commands knowledge in detail as the layman, however well versed in principles, cannot rival.

The tendency of special knowledge to mingle with the current of general information is

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abundantly illustrated. Knowledge of arithmetic was at one time esoteric, and the arithmetical specialist solved simple arithmetical problems for pay, presumably with an air of mystery. As arithmetic has become a commonplace of learning, not implying that the possessor of such learning is well informed, so other classes of information have quite lost any character of mystery, and the specialist is saved by bulk of information rather than by its essential mysteriousness and distance from common understanding.

Public welfare would seem to demand that any information of vital significance should be made as available as possible to the ordinary citizen. Accordingly the specialist to be of greatest social usefulness should become a free dispenser of knowledge, as can hardly be the case when his income depends in part upon maintaining a degree of secrecy. Were the success of the physician measured by the extent to which his fund of information became a common possession and were physicians free to promote public health without thought of commercialising their information, the good effects would be obvious. It is a misfortune that in many occupations or professions the specialist has little or no incentive, or indeed has incen-

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tives to the contrary, to make his knowledge public.

The sick frequently need advice in the early stages of disease which they do not receive. The physician has the information which they need. Fearing expense they keep away from the physician's office, and the physician withholds counsel. A vast amount of sickness and numberless deaths would be prevented if the physician's stock of knowledge were put more at the service of those in need of medical advice. The modern physician is in the position of the mathematician of the middle ages who solved problems for pay.

The dependence of the physician upon compensation from the patient militates against any but the more superficial instruction of the latter. Few explanations are forthcoming, and the seeker after medical knowledge carries an unintelligible prescription to the pharmacist for remedies for a complaint about whose cause and nature he is but dimly informed. The physician's waiting room is filled with people who are too old to go to school and whose chief ailment is ignorance. Altruism will not, however, support the physician's family, and time cannot be taken to give lectures in hygiene.

It is unfortunate that the objective point in

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the physician's career should not be the elimination of disease and decrease in the number of those seeking medical attention. A case, beyond question very rare, was that of a physician who was made health officer in a small city in the West. Asked why he did so little to improve health conditions in the city, he replied that "there was nothing in it." He owned a hospital, it may be added. Despite the generosity which characterises physicians as a class, a trait growing out of acquaintance with pain and destitution, the most important service possible, that of teaching how to avoid sickness, is greatly limited by the fact that the physician must sell his knowledge to ignorance without impairing the market. One step further in social evolution and the physician through complete state support may realise an ambition which is not lacking among physicians, that of giving their knowledge without thought of private compensation.

The physician, attorney, dentist and engineer are essentially bureaus of information requiring merely subsidy to become state institutions. With state support so far as their services as diffusers of information of general interest are concerned, the banks of dammed-up knowledge would be still further cut and a larger flow of

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practical wisdom issue. The aim of popular enlightenment implies that the specialist's services inure to the general welfare as not possible under a system of the commercial retailing of information. The state-supported specialist, found in governmental departments and institutions of learning, is an instrumentality for advancing knowledge beyond present limits and increasing the volume of popular information.

The pansophic ideal has given way to the ideal of specialisation in learning. No longer do men presume to be equally proficient in all fields of knowledge, or as did Bacon, take all knowledge to be their province. Indeed the ideal of specialisation has become so pronounced that some affect a simplicity as unbecoming as pretentious. A pansophic ideal, limited to the more salient and usable items of knowledge, is not a bad ideal. Divesting sciences of their scaffolding of details and ignoring the elements of scholasticism which adhere to learning, a catholicity of information, covering the main fields of what is most valuable, is quite possible, as illustrated in the mental outfit of university presidents, publicists, and men of affairs. And plain people under right instruction may acquire such information as tends to longevity, self-support, varied interests,

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happy social and family relations, breadth of outlook and the touching of life on all sides,—which are not irrelevant tests of a practical pansophism. If one distinguishes between knowledge which actually makes for adjustment and knowledge which consists of what some one has said or written, whether involved in practical relations or not,—mere mental products,—the aim of acquiring what one needs to know becomes a modest one.

Lifelong study of a particular field does not mean that there is so much valuable information in that field as to employ one's efforts for many years. The specialist may spend much time in winnowing out truths that when made available require but slight time for the learning. The inventor may spend a lifetime in reducing to tangible truth the ideas that inspire his efforts, but the invention once completed, a knowledge of its uses is so readily gained that very undeveloped individuals may be seen running machinery which only genius could have made possible. The practical knowledge of the automobile is acquired in a moment of time as compared with the period spent in its invention. The knowledge of the use of a thing is infinitely less laborious than that of its creation. For such reasons the learning represented by

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the specialist is easily exploited by the layman and the specialist's bulk of information affords no criterion of that which the non-specialist should aspire to make his own. Years are spent in securing merely negative results or in clearing the way to tested knowledge. Such labours in no sense are commensurate with mass of valuable information. It would be unfortunate if impressiveness of research in laboratories or libraries were to discourage from attempts to learn widely and to deal vigorously with such information as the research of others provides. The audacity which characterised the earlier scientists and which shows in the undaunted spirit of the unsophisticated who attack the compilations of science with no fear of defeat is worthy of cultivation in an age of massive specialisation.

The dejection which so many feel when in a large library has only a moderate justification. The adolescent feels that unless he reads all the books on the shelves his future is imperilled. Age brings a clearer view, and to the mature the books which terrorise the novice telescope together through the elimination of repetitions, and yield but a nugget where seemed a mountain of solid ore. A better appreciation of the situations in life which call for knowledge re-

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tires a multitude of books from consideration. Realisation that what interested this author will never concern you, that your adjustments require a knowledge different or already attained, buttresses self-respect. Books which in earlier years seemed to be to live by become mere dust-covered incidents. The bookless, in their distrust of the wisdom of such as put their trust in books, point a lesson in the relative values of knowledge which should be reassuring in a period when the specialist and his compilations tend to make the unwary apologetic for having been born without even the rudiments of an education.

The specialist is no doubt to play a larger and still larger part in social economy. Merely to live under complex conditions involves knowledge greater than the individual, no matter how industrious, can secure at first hand. The individual's brain becomes organised with the larger sensorium of an increasing number of expert truth seekers. To make the results of the specialist's investigations more accessible to the general public is a matter of the greatest importance.

VIII

THE FIRST TEACHER

AT an early date the priest arose as a conservator and dispenser of socially retained knowledge. The art of writing is closely identified with the priest class in primitive societies. The learned class originally was that consisting of those who knew the religious traditions of the tribe, its crude cosmogonies, the rites and ceremonies attendant upon the control of the weather, the growth of crops, the embarrassment of enemies, and the exorcism of evil influences and spirits. The body of information with which the primitive learned class dealt comprised a certain amount of verifiable knowledge and large masses of pseudo science. Elaborate mythologies were developed as a joyful exercise of imagination and the dramatic instinct and a rough attempt to explain the phenomena of the world by anthropomorphism. The priest invented characters to preserve knowledge, essayed to organise knowledge and attempted to acquire knowledge beyond the pale

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of the senses. Imparting socially retained knowledge and nescience to apprentices to his caste, the priest became the first formal teacher. The history of education is a record of the priest as teacher, with an increasing divergence appearing between secular and clerical conceptions and the emergence of the theory of the complete separation of church and state in educational matters.

The cleavage between the priest and secular teacher intensified with the growth of critical evaluation of knowledge. It was inevitable that much of the primitive accumulations should be found unreliable. With the invention of instruments and methods for discovering truths, and with the work of prior experimenters to build on, the tentative scientist soon came into collision with the class who laid claim to all necessary knowledge and were not solicitous to apply tests of value. The battle between science and theology was waged frightfully during the middle ages, was continued with much bitterness in the controversies that centred about Darwinism in the nineteenth century, and reverberates even in the twentieth century.

The struggle has resulted in the practical retirement of the clergy from the field of science. The modern clergyman, instead of denouncing

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and deprecating the teacher of science, turns over to him a certain domain of knowledge, reserving to himself a province characterised by more difficult demonstration and broader inductions.

To what extent the warfare of theology against science in past centuries arose from occupational motives is an interesting question, probably deserving more attention than it has received. There can be but little question but that a desire to protect the prerogatives of a class by shielding and maintaining an occupational type of knowledge figured largely in the persecution of the non-conforming scientist and intellectual insurgent, represented in the burning of Bruno, the imprisonment of Roger Bacon, the terrors of Andreas Vesalius and the dead of the Spanish inquisition. As princes fought for lands and spilled blood for aggrandisement, so clerics may have striven to protect a strategic position, losing sight of the higher aim of truth in defending a privilege. The startled resentment which to-day kindles when divergent medical or educational practice is announced or theories advanced may be a key to a better appreciation of a period of history known unfavourably for the bloodshed of scholars.

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Self-imposed confinement to a literature has greatly narrowed the knowledge-diffusing function of the church. Were the church free to depart from a closely limited field of information and embark upon a broader career of knowledge diffusion, preaching lessons in scientific hygiene, agriculture, law, medicine, investments, politics and economics, its function in helping to put individuals in right adjustment to their physical and social surroundings would be vastly increased. The clergyman's function becomes that of personal service and the church loses its hereditary character of school. Clerical service rendered in behalf of the needy and discouraged and in behalf of community improvement becomes the typical service of the church, and the knowledge-diffusing function, represented in the early union of church and school and in the New England preacher, who was the repository of learning in his community, is quite fully transferred to secular educational institutions.

Current tendencies in the church are significant. Fewer young men are preparing for the ministry. The closed church has become common, especially in the smaller towns and in the country. The indifference of men to church services is pronounced. Theological seminaries

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of repute are abandoned or decadent. But along with atrophy there is new growth. The clergyman who, abandoning repetitious discourse, launches out into sociology and reform, engaging in social service related to immediate needs, attracts a following and builds up imposing activities. Teaching science in popular form, more particularly a type whose laboratory is life, the progressive clergyman makes a place for himself beyond the reach of atrophy.

The difficulties of the clergyman who would live by the traditions of the church as a school are increased by the relatively small number of persons not reading extensively. Even the university professor finds it difficult to surprise with unexpected information. At least a superficial general knowledge of science is abroad, and the successful teaching of adults requires a specialisation in subjects possible when, as in a college, various branches of knowledge are taught and cultivated intensively, but hardly possible under the conditions in which the clergyman labours.

The future clergyman will no doubt become a practitioner of knowledge, similar to the attorney, rather than continue the function which first characterised his class, that of formal instruction. The knowledge practised, prescribed

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and promoted by him will include an ethical code of traditional origin but modified and adapted to meet modern conditions, and will embody a fresh accession of knowledge derived from contemporary science. While still a teacher, and the church still a school, the clergyman and the church will probably become far more closely related to social service than to formal instruction. The shifting to a new basis of effort is evident in the many signs of change.

The general observance of a day of rest on Sunday and the fairly common legal recognition of Sunday give the church access to the attention of adults afforded no other educational agency. The capacity of church buildings favours their use for instructional purposes. At least by co-operation with lecturers and specialists the church might easily maintain courses of instruction supplementing the formal curricula of the higher schools.

Improvement in method as well as change in matter would affect the efficiency of the church. The method of dogmatic statement, as in the formal homily, precludes debate. The unmodified lecture method of teaching, with no opportunity for pedagogical discussions, places the typical sermon or exhortation on a somewhat low level of instructional efficiency.

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The special contributions of church instruction have been along the line of higher consumptional efficiency. In the middle ages religious instruction essayed to prepare the individual for meeting the requirements of an ideal future environment. Later tendencies have emphasised adjustment to life as it now is. Practically no knowledge of direct productional quality has been imparted, saving that related to the monastic industries. The dignity of labour or rather the duty of toiling in contentment has been preached with effects upon production. The knowledge of the use of things, of attitude toward the material values of this world, of a scale of worth, has ever been inculcated.

The larger emphasis upon consumptional instruction is evidenced by the high place taken by forms and ceremony, music, architecture, colour, dress and decorum of formal services. Those most appreciative of all forms of art have usually been strongly attracted. The collateral literature of the church, its hymns and litanies and the sublimated phrase and finished aphorism, appeals especially to those fitted by nature or traditions for the enjoyment of rare values. Relatively less stress has been placed upon how goods should be produced or distributed, the

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current practices in these relations receiving but secondary attention.

Increase in volume of knowledge has compelled the establishment of special agencies for the diffusion of knowledge, with which the church, in its knowledge-diffusing function, has been unable to keep pace. In this function the church has played in the past an impressive part, but neither by present organisation nor by catholicity of ideals as to knowledge values, does the church seem likely to overtake in diffusional efficiency the specially created instrumentalities whose sole purpose is the discovery of new truths and the dissemination of learning and which are supported by the public as a whole with singleness of purpose.

IX

OTHER AGENCIES

SIMPLE communication, the church, the press and the specialist are more or less efficient diffusers of knowledge more or less relevant to the needs of life. Other agencies are also employed, and the need of still further agencies for effective distribution is becoming widely felt. Whatever knowledge exists in any one's consciousness or preserved in print, having a bearing upon human welfare, should be sent to the points of need. That any one should suffer or undergo loss from lack of information which might be issued to him is a tragedy. Wherever exists a person who is injured through ignorance, to that point of need the agencies for the diffusion of knowledge should transmit the necessary information.

But knowledge alone is not sufficient. Capacity and intelligence must be present. Very true, but since capacity and intelligence arise, in the long run, from the presence of knowledge and the attempt to make use of it, the personal

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factors required for the good use of knowledge are very closely associated with the process of diffusion. Diffusion becomes the central fact in the process of raising intelligence to the level required for the good use of knowledge supplied, and the indispensable condition of favourable adjustment to environment.

One commonly thinks of books as a chief means of diffusion, and as such they underlie the work of specific agencies. Books often fail to give as much assistance as one might expect. The average reader needs direction in finding what he would profit by, and the material of real value to him may exist as items of information scattered through many volumes, a particular book often containing but little of importance for the purpose for which the search is made. The reader who is not a specialist is therefore often as much in need of direction as of books alone. The assistance rendered by well-organised libraries constitutes a most important step in successful diffusion. The great number of books and their bewildering appeals lessen the likelihood of the casual reader's wise use of them.

The interpreter of books is a necessity. Print is weak compared with oral explanation, accompanied by discussion and query. The

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public meeting, the convention, the civic center at which free discussion is encouraged, and the exhaustive consideration of essential items of knowledge, possible when a company is assembled and attention is fixed, make for lasting impressions not usual in ordinary reading.

As an outgrowth of classroom instruction various forms of college extension have appeared. Extension recognises the fact that adults who cannot attend classes have needs for information which should be immediately met. University extension, developed in England, and attempted later in the United States, catered to the interests of higher culture in communities by lecturers who discussed literature and science. This form of extension has been superseded largely by the extension of knowledge bearing upon the more obvious needs of various classes, as farmers, mechanics and housewives. Agricultural colleges have set standards of efficiency in this form of activity. Lecture courses and correspondence study for those living at a distance from the higher institutions of learning are a means of a broader diffusion than is possible when the ideal of institutional service is that of retailing information merely to those who can enter the college gates. The whole public becomes, under the ideals of extension,

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the student body, and no small effort is spent in diagnosing the needs of the audience and transmitting pertinent facts to cure maladjustments. A large issuance of bulletins and leaflets, press letters and timely notes, serves to place required information before the eyes of readers at seasonable times. Given a basis of general information on the part of the recipient of such information, the practical aid thus rendered is at once measured in increased crops and better methods, better health and improved conditions of living. Replies to letters of inquiry addressed to scientists and experts, especially such as are connected with government experiment stations, form no small part of extension activities. Thousands of letters are received annually by various departments whose work covers such fields as farm mechanics, soil chemistry, seed testing, gardening, animal industry, dairying, forestry, poultry raising, and similar lines. Indeed the letters written in connection with such inquiries are said to form the largest correspondence school in the world. Bulletin literature giving the results of investigations of practical subjects, as paints, foods, tillage, varieties of grains, fruits and vegetables, issued by the federal department of agriculture or by the colleges and experiment stations, is of

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great volume and tends to better methods of production. Some bulletin literature misses the mark by being written from the standpoint of the experimenter rather than with only the needs of the reader in view. Methods of arriving at conclusions are of less popular interest than the specific rules and useful facts which investigations have established. The editing of scientific bulletins for economy of the reader's time and brevity of statement requires careful attention.

Among extension activities that of providing clubs and local organisations with materials of use in debates, as bibliographies, subjects for discussion and pamphlets and articles, marks a forward step in preparing the public for civic duties. Assistance in the understanding of timely questions, whose discussion involves serious study of political and economic principles, can hardly fail to advance greatly the discrimination of the public in regard to parties, platforms, and public men.

A form of educational extension is that illustrated in the efforts of salesmen to enlighten buyers as to the quality of goods and the uses, advantages and makeup of manufactured articles, especially machinery. Lessons in physics accompany the sale of engines, agricultural im-

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plements, vehicles, heating systems and wind-mills. Such lessons may fall from the lips of the salesman or be thrust upon the inquirer in the form of pamphlets and circulars. Individuals, like backward nations, may be mentally awakened and extensively informed by the salesman. The instruction thus given is likely to be one sided and unsystematic, but that a fair amount of scientific information accompanies the sale of manufactured articles is beyond question.

Society has formally designed or suddenly improvised means of placing within reach of the individual knowledge required in many of his more obvious relations. The diffusional system is far from perfect, however, many defects being notorious. While the mass of mankind are enabled to get along after a fashion in the new situations whose demands can be met only by the application of former experience, or knowledge, the more perfect adjustments contemplated in civilised society fairly require a more highly developed diffusional system. The ideal is the placing of any knowledge at the disposal of any one at any time of need. The impossibility of doing this by storing the mind with all useful information in the early years, an ideal intimated by the term, a finished education, must

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be acknowledged. An approximation to the highest ideal of diffusion is declared in the words of Ezra Cornell, founder of Cornell University, "I would found an institution where any person can find instruction in any study." Add to this aim that of causing the information to find any person, and the ambitions of diffusion are announced.

With the realisation that individual memory is unable to provide the items of information needed from time to time, dependence upon reference works and emergency helps has increased. The lawyer does not hope to know a tithe of the law. If he knows where to find the law his professional conscience for scholarship is placated. Such knowledge as is needed for his more usual services is available from memory. In a sense the creation of a more highly developed diffusional system is the expansion of the idea of reference works. The state-paid specialist or governmental department to which one turns for information in exigencies is the encyclopedia metamorphosed by evolution. Dependence upon reference agencies is likely still further to increase with the expansion of learning and the complexity of relations to which one is subject. The more mobile one's environment, the more one shifts his position geograph-

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ically or socially, as by promotion, election to office or change of residence, the more likely that he will feel the need of asking questions. The improvement of the means of supplying a needed fact to any inquirer is therefore one of the more urgent, if less obtrusive and conspicuous, problems of social economy.

Some have looked in the direction of the schools for the solution of this problem, and university, college, and high school extension have been thought to promise a solution. To a very large degree these institutions may solve the problem. The possibility of a considerable development of extension work based on teaching departments is large, and no doubt barely realised. There is no reason why the teacher of physics or agriculture, art or education, should not touch the public at many points and teach those outside his classes as well as those within. The teacher's efforts, however, will no doubt be mainly directed to the young people who meet him from day to day, and who can give their time to systematic study. Indeed the strategic point in all public education is the classroom with its quota of receptive students whose interests as learners are undisturbed by business and social interruptions.

But a fair contribution to popular enlighten-

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edition
ment may be made by teachers through extra-mural teaching provided the spirit of being of public service ^{animates} the teacher. Why should not the teacher of law, medicine, literature, sociology or psychology make use of any opportunities not inconsistent with his classroom duties to bring under his instruction men and women unable to attend regular classes? A better point of view and insight into the relation of his subject to general welfare is no small part of the advantage of such double service on the part of the instructors. Certainly any incidental opportunities for such extra-class teaching should be welcomed.

That there is an incompatibility between extensive extra-class teaching and the highest efficiency as a college or high school instructor is beyond question. It is found that popular lecturing requires a different kind of ability than does institutional work and that the division of time between class and extension activities makes for losses. The simplicity and repetition which must characterise instruction designed for audiences but slightly acquainted with particular subject matter would be out of place in college classes, whose acquaintance with various bodies of information may be assumed from their previous training. The populariser

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may deal in illustrations and ungrouped facts in ways which are unnecessary in advanced classes, in this respect employing the methods of the teacher in the elementary schools. The development of college extension to its fuller usefulness will doubtless demand the division of teaching function between the professor and the field instructor. Two faculties will need exist, one devoting its main efforts to a chosen number who attend the higher institutions, and the other going forth as emissaries of a gospel of science adapted to the humblest and most frequently experienced needs. The organisation of distinct departments of extension in the higher institutions with staffs who make a special study of what communities need in the way of timely information and of means to supply such information seems to foreshadow the evolution of the college with reference to the teaching of adults not in actual attendance.

A variety of methods of conducting extramural instruction have appeared, of which the farmers' institute affords an interesting example. A number of specialists in agriculture and domestic science may spend a day or two, or as in a plan employed at the Iowa State College, a week, in a place, giving short lessons on practical topics, and demonstrations of better meth-

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ods, constituting a peripatetic school of most utilitarian philosophy. If conducted in the winter months, when large attendance may be secured, such institutes result in the tuition of many thousands who otherwise would be unimpressed with the importance of scientific methods, reading but slightly or giving little heed to the less emphatic statement of similar ideas in farm papers. Speakers at farmers' institutes are called upon for counsel between times and perform services with respect to crops and farm management like those which the physician performs with reference to disease. The addresses delivered during a year in a given state form a volume of peculiarly valuable information for producers.

Similar to the farmers' institute in nature and scope of instruction are the vocational short courses offered at various colleges and universities. Courses of a few days or a few weeks are organised for any who may care to attend them, no entrance examinations or credentials being called for. Farmers, their wives and children in this way attend college for a short time for instruction in beekeeping, dairying, horticulture, poultry raising, farm accounts, animal husbandry, veterinary science, steam and gasoline engineering, farm mechanics, drainage,

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cooking, and sewing. The establishment of such short courses at high schools prepared to teach agricultural subjects enlarges the influence of such instruction and relieves the higher institutions of the burden of maintaining a special staff of instructors and of providing room for the large number who wish to attend. Young men and women of the country find in the winter short courses given at high schools or colleges a valuable opportunity.

The need for educational agencies differing in methods from the secondary and higher schools which maintain long courses and exact substantial requirements for entrance is met in part by business schools of bookkeeping, typewriting and shorthand, by Y. M. C. A. and Y. W. C. A. classes, by night and continuation schools, and by private correspondence schools. With the decline of apprenticeship and the growing unimportance of the home as a school of industry has come about a demand for vocational instruction which the public schools have as yet in large measure been unable to afford. A multitude of educational expedients are resorted to pending the development of the public schools and universities into adequate institutions for the free instruction of the host of young people who under present conditions of

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wealth distribution have but little time that may be spent in formal instruction. The public school system can be of ideal service only when the state insures to every young person not only the facilities of education which consist of buildings and instructors, but also maintenance sufficient to enable one to accept the education which the state provides. Until such maintenance is assured expedients will be necessary to reach the youth employed in offices and shops with such information as they most urgently need.

A larger development of agencies to supply information to points of need is made necessary by the multitude of situations in which one must play an unexpected part. Expansion of the school system to include a wider range of subject matter and to reach a larger number of students, either in residence or otherwise, will do much to meet demands for information, but the required information will often need to be supplied by agencies that can reach the person in need at a moment's notice wherever he may be situated. Such service contemplates a finer elaboration of knowledge diffusion than college extension, as at present understood, attempts. Hardly a day, even an hour, passes during which one does not experience the need of information

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which he might with delay and some trouble find out for himself, or regarding which he is at utter loss. In one's daily employment expense and poor results are entailed very frequently for the lack of information which might be made immediately available. Reference books supply a part of such information, but probably a majority of the important questions that arise in the daily life of the majority of people go unanswered, books not being at hand and the person who knows not being of immediate acquaintance. In fact ignorance is accepted as a normal condition and a trial and error method meeting emergencies and commoner demands becomes the practice. The instinct to ask questions becomes atrophied and adults go about their work and diversion mechanically, quite oblivious to the possibility of improving their adjustments by invoking the aid of knowledge. Maladjustments are accepted as a matter of course, and preventable loss and hardship are undergone in a spirit of resignation born of the failure of knowledge-diffusing agencies to impress upon the public the habit of inquiry. When one finds himself in a position where his own knowledge fails, the first thought should be of a source from which appropriate knowledge may be obtained. How often on the contrary

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is ignorance accepted as inevitable. "I don't know," is the common expression rather than, "I am unable to find out."

To encourage the tendency to seek information when needed and to minister to the individual in his exigencies, enlargement of the diffusional system seems necessary. The almost universal use of the telephone supplies a factor which might be employed to bridge the final gulf of ignorance, provided the agency existed at the other end for responding to the inquirer. A national information department with bureaus in localities suggests itself. Local bureaus might be set up in public libraries or in connection with educational institutions, to which queries might be addressed. Certainly no one person can be his own information bureau under the complexities of modern life, and assuredly there is no one, however resourceful, engaged in active business or professional pursuits who would not profit immensely by being enabled to call at once upon such dispensaries. The present public library and college extension department represent the tadpole stage of a greater diffusional system.

The assembling and convenient classification of all important knowledge, particularly with

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reference to that needed in the various communities, and the development of a bureau force of prescriptionists of information, with the highest ingenuity of office economy at their command, would effect a junction of supply and demand in the world of knowledge, making for the avoidance of human ills and positive gains for civilisation. It should be possible for any one at any time to call upon such state-supported bureaus for any needed information, which, if not afforded immediately by the local bureau, might be transmitted to the local bureau from the central department, which with its staffs of experts in the discovery and organisation of data for general use would be a clearing house of the world's stock of tested knowledge. The employment by such national department of agents to advise inquirers at their places of business or farms and give specific instruction, illustrated in the assistance given to farmers by visiting experts in Belgium, Holland, and to some extent in the United States to-day, would be implied in the scheme of diffusion suggested. The teaching of the young, which is the main province of the schools, would thus be supplemented by a comprehensive system for transmitting to any one in need such

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facts and principles from the total of organised knowledge as the exigencies of the moment might demand.

Indeed the congestion of information represented in the masses of published data, and scientific articles and statistics now accumulated in government departments and institutions of learning and research, and by the publications of penal, charitable and other institutions, suggests the importance of establishing more efficient means of getting information to the public. Mountains of reports, bulletins, consular documents, and of miscellaneous printed matter, from national, state, municipal and other public sources, as well as similar matter from private sources, are prepared with the hope that the public will burrow its way through, or that the person concerned will scent the item of interest through tons of paper. The miscarriage of information and its wasteful oblivion when offered in such forms are notorious. The printing of matter for public use is but a step toward its proper employment. Personal services are necessary in order that the inquirer may not have to constitute himself an expert librarian or investigator and spend days or months in collating information which system should make available at request. Merely to make govern-

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mental publications serve the purpose for which they are prepared requires special means of diffusion.

If in addition to making governmental publications more available a national department of information sought to collect the essential knowledge contained in other publications, and especially attempted to bring together for application to daily needs such information as lies scattered and unorganised, in print or not in print, the value of its services would be immeasurable.

With the establishment of ampler means of diffusion not only the victim of ignorance but the man who professes a special knowledge would benefit. The contractor, plumber, trained nurse or physician often must confess ignorance because of non-access to an organised knowledge bearing upon their employments. With stores of vocational information opened through system there would need be little delay in learning whether a cast iron pipe rusts less full or empty, or whether a proposed artesian well is within or without an artesian basin.

X

THE SCHOOL

THE particular agency established for the diffusion of knowledge is the school. Other agencies have preceded and others supplement and coexist. But to the school we look as the principal agency in the diffusion of knowledge. The urgent importance of equipping all with a maximum amount of valuable information, long known or newly attained, which is felt increasingly in the multiplying relations of civilisation, serves to direct all eyes to the school and centre the interests and sympathies of all upon education as the guardian of what is good from the past and applicable to present needs.

The greater amount of information required now than formerly as a preparation for life and the longer period of school attendance give the school a strategic position in society. A virtual monopoly of the pupil's attention for the first one fourth or third of his life is, under ideal conditions, assured. During this period such ideas and portions of accumulated knowledge as

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may be acceptable to administrators of education have almost exclusive claims upon the learner. The opportunity of the school to shape individual character and social conditions through the medium of instruction appears correspondingly wide.

The services of the school in the diffusion of knowledge are registered in ever-increasing enlightenment and store of information among all classes. The attainment of almost universal literacy is one of the greatest triumphs of the educational system. Learning to read opens up the long road of social and personal advancement and were the results of three centuries of popular education to be judged merely by the recession of illiteracy all the expenditures for education would be justified. Reading knowledge has the peculiar merit of being indispensable in nearly all the relations of life. There are facts which one needs at rare intervals, or in a narrow and infrequent range of relations, but reading knowledge is concerned in so many relations during all the years of life that no other knowledge is comparable to that of how to read.

Much knowledge has flowed among the people through other channels than the schools and much which might have flowed through school channels has been dammed up for lack of outlet

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in the teaching system, but in the wide dissemination of the fundamentals of knowledge as embodied in geography, natural history, arithmetic, language, and the elements of various sciences and cultures, differing with the period and grade of school, the services of the school have been such as to make even the feeble beginnings of instruction represented by the little red schoolhouse synonymous with the upbuilding of the nation.

Among the peculiar advantages of the school is the recitation. Much of what we merely read we do not remember. Knowledge needs to be impressed to be at one's command. Class discussions tend to fix points in mind. Examinations are a device to encourage remembering. The casual reader does not master a subject as does the student. The school employs various means for making knowledge a real possession. Other agencies may offer a larger bulk of information, but none impresses lessons more thoroughly.

That there are limitations to the efficiency of the school, arising from historical or other causes, may be frankly recognised.

The importance of stimulating intelligence and establishing thought habits has no doubt had much to do with the origin and persistence

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of the educational theory that it matters little what one studies so long as he studies something. Mental training has been sought through the agency of knowledge not commending itself primarily for its applicability to the later life of the learner, except as it results in increased mental power and acceptable tendencies. Under this theory considerable indifference has appeared with reference to the intrinsic value of information imparted, and kinds of knowledge of doubtful utilitarian value have for development purposes been ranked high.

The prevalence of the disciplinary conception of subject matter as contrasted with that of utility has had much to do with the nature of materials descending to the present day through the traditional curriculum. Knowledge which entered the curriculum at an early period for practical uses has in some cases been retained after becoming relatively unpractical, for disciplinary reasons, and a mass of knowledge of indifferent practical character has found lodgment in curricula in default of strict evaluation for practical values. Not only so, but the gleaning of knowledge of intrinsic value and its incorporation in the curriculum have been kept in abeyance because of the dominance of the

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theory that it matters little what one learns provided he studies devotedly. Not to underrate the vast services of the school as a diffuser of valuable information, it is undeniable that inefficiency has prevailed due to the unnecessary antithesis of discipline and information.

So important is intelligence in applying items of knowledge and the happy knack of making use of facts, that were non-utilitarian information far superior for purposes of mental gymnastic it would need be conceded a wise practice to fill curricula with such material. But it can hardly be contended to-day that any peculiar merit inheres in subject matter not relevant to the needs of life. There are no mental faculties or powers which may be trained by non-utilitarian knowledge which may not be equally well trained by means of knowledge of intrinsic value. Memory, reasoning, imagination, sensibility and observation surely are highly involved in the learning of information which one will use in effecting necessary adjustments to the world. Moreover, it seems reasonable that such knowledge as one will make use of in later years, should be the same as that which might afford the best mental drill and stimulation. Training the mind is the setting up of habits among the conscious processes, and habits are special

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in their nature. One may be trained to have good judgment in dealing with certain data and prove most injudicious in dealing with other matters. The more unrelated to life the materials of study are the more likely would seem the attainment of mental traits at cross purposes with the needs of life. It seems a questionable proceeding to train the mind exclusively upon any class of facts not to be employed in one's relations to environment. Ways of looking at things and judging realities may be deeply affected by the kind of matter one's attention has been given to during the formative period. The burden of proof rests upon the advocate of any system of training mental faculties in which is not employed the knowledge which the individual will probably use in making his future adjustments.

Much has been taught because it was easiest to teach in that the materials were most available. No subject matter is more abundant than the forms of language. No subject meets tests of value better than language, but on the other hand, carried to extremes, possibly no subject matter can be more useless. The existence of the great classical languages with an extensive literature afforded an opportunity in teaching materials which was not sufficiently resisted.

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The difficulties of organising science by induction were avoided in the hyperdevelopment of language instruction.

Command of one's native language makes for production, gives the instrument for adjustment to distribution and satisfies through literature the higher needs. Acquaintance with foreign languages promotes these ends in diminishing scale and varying with individuals. In apparent disregard of the application to life of the words and rules of foreign language, academic instruction has laid emphasis upon verbal attainments, and many curricula if stripped of their content of foreign language would show the utmost poverty.

Other types of knowledge have entered the curriculum on a plane far removed from daily needs. Metaphysics and logic, as cultivated especially in the middle ages, elaborated materials obtainable by introspection and shunned tests of practical efficiency.

Historical materials have been readily available and have, like languages, occupied much space in curricula. Perhaps no kind of learning requires more careful winnowing to exclude inert and even deleterious matter. In history quantities of material may be found which are of all grades of importance or of

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none. The value of historical obliviscence in promoting progress is not to be overlooked. The individual would remain a child in many respects if he forgot nothing. The childish grudge, the wrong way of doing things, the faulty conclusion, and the repulsive detail are happily forgotten. So far as history parades the barbarities, pseudo science, battles and deficiencies of race infancy, it supplies undesirable suggestions. The law, perhaps the least progressive of professions, takes its character from the predominance of historical elements in the lawyer's training. History should be so interpreted and presented that the pupil would not feel the full force of ancient examples, if undesirable, constructive suggestions should be disentangled and unwise fascinations guarded against. Details of history, so abundant and easily employed to build courses, may have little place in one's equipment for the relations of to-day. Indeed the reviewing of systems of thought and social practices from the earlier centuries tends toward an atavism. The school-boy who after studying battles expresses regret because Japan and the United States do not go to war, and the Greek instructor whose outlook upon modern life is from a standpoint two thousand years removed, are examples. We need

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to forget liberally, while remembering wisely what has happened in the past. Substantial political progress and hopeful social innovations have come from pioneer communities, as New Zealand, Australia, and the United States, especially the West, where people have forgotten relatively more of the past, where historical knowledge is thin and far away. But in old communities, where even the merest trifle of family or neighbourhood gossip is embalmed for years and where hoary institutions and landmarks cite eternally to the past, the very fundamental of advancement is defeated—obliviscence.

So clogged with inert and inherently useless items of knowledge may become various studies that often the student of certain types of curricula is surprised when he finds that his school knowledge actually plays a part in his adjustments. Often he seeks in vain for instances where facts learned have proved of unmistakable value to him. In need of knowledge many times a day to effect relations he relies in many cases upon knowledge from extra-academic sources. He has learned languages that are not spoken by those with whom he deals, and amassed knowledge that does not function noticeably in his occupation and his home. He is

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puzzled daily by problems to which his school-acquired information does not apply, and preventable mistakes and losses show deficiencies in instruction. Inquiry made of graduates as to the extent to which various studies have helped them after leaving the school often leads to disclosures far from complimentary to the value of certain courses as providers of usable information. Ammunition has been supplied that does not fit the gun that must be used. The bridge, in Cæsar's Commentaries, is replaced by a different structure, about which nothing to the point is known. Stray facts about the classical bustard and the Andean condor, of a certain value beyond doubt, help little in the successful raising of poultry.

The lack of a larger amount of knowledge of unquestionable value in the curriculum is partly due to the difficulty and expense of going afield for more valuable information. The teacher has been a conduit of the most accessible knowledge, that which has entailed little expense. Cheapness has been a principle governing the organisation and impartation of knowledge in schools. Subjects requiring apparatus and special facilities for demonstration and illustration have tardily gained admission to the more common schools. A classical college may be

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equipped with the materials of instruction at about the cost of a high-bred cow for a school of agriculture.

While it is true that the most valuable knowledge consists of principles rather than perceptions of objects, and that the objectification of knowledge may easily be carried to extremes, the modest financing necessary to the teaching of certain kinds of knowledge has too often been lacking. Technical instruction has accordingly lagged far behind types requiring less outlay.

The curriculum has been a faulty vehicle of needed knowledge because of the dependent position of the teacher. Financial insecurity as well as conservative supervision of materials by the community has operated to reduce the curriculum to conformity with prevailing notions. Darwinism first made its way into the universities, later into the high schools, and is still on the waiting list of the elementary schools. Public opinion has not been educated to defer to the superior knowledge of the competent teacher in matters coming particularly within his range.

This limitation applies especially to instruction in civic questions. A free discussion of taxation, the tariff, parties or the franchises of local public service corporations would be im-

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possible in the school. Accordingly the teacher when dealing with political matters tends to confine himself measurably to slavery, Henry VIII, wildcat banking, the corn laws of England, and cooled-off relics of past political battles. The contributions directly operating to civic betterment coming from the schools are limited. Only political questions which have ceased to be active figure freely in instruction. In view of the fact that perhaps the greatest gap in diffusion to-day is that in distributional knowledge, the limitations of the school with reference to imparting timely information are the more conspicuous. Such limitations, however, are not necessarily irremediable.

Indeed the teacher determines the size of the flow of knowledge of whatever sort. Any inefficiency of the school as a diffuser of information needed in the affairs of life rests largely upon the practice designated as "selling educational positions to the lowest bidder." Great numbers of teachers are young and hastily prepared and are inadequate as conduits of vital information. Even where so-called professional training is imparted, which happens perhaps in less than fifty per cent. of the cases, the outlying information of the teacher is often meagre and far short of what should be

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available for instruction. Cultivated, broadly read, large-minded men and women of maturity and experience are rare in the common schools. Narrowness of experience or interests on the part of the teacher leads to stereotyped information and unfortunate omissions. The first requisite for dispensing knowledge making for life adjustments is that the instructor have a vivid consciousness of the more usual situations in which knowledge will be required in the student's later years. Such consciousness is not common in the young teacher. The highest excellence of teaching can hardly be possible before maturity. The principle of cheapness in education, which limits the contact of the teacher with other people and opportunities for growth, results disastrously upon his fitness for knowing and dispensing information of most worth in the pupil's after life. So beside the mark may be perfunctory teaching that many self-made men bear witness to the fact that while not having attended schools they nevertheless have acquired through other agencies a stock of knowledge in quality and quantity as excellent as that gained by those who have attended schools for years.

Certain ideals gained in experience with young children persist and affect the efficiency

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of the teacher. To the young child the whole world is novelty and one fact is as important as another. The teaching of the obvious becomes an educational practice not soon enough discontinued. Bulky details of little significance, which in any event would be very likely picked up later in the course of casual experience, become substitutes for knowledge not likely to be picked up and of more critical importance. The fact, frequently illustrated, that a child may omit a number of years of instruction and later measure up with children who have never missed a day of school would indicate that a large bulk of information may be imparted which is unimportant or is implied in the child's extra-school experience. This position is supported also by the success obtained by judicious parents in keeping absentee children up with their classes by means of a short period of instruction a day. A considerable percentage of what is taught is pedagogical surplusage. The practice of teaching the obvious, legitimate in the child's earliest days, becomes a barrier to school efficiency if continued, in that it admits into the curriculum too much circumstantial information. Prolixity, the bane of many courses in the higher institutions, evidenced in swollen syllabi and plethoric depart-

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mental courses, and in corpulent books whose essence would require but a pamphlet, may have its roots in the ideals of the primary class.

Aside from the perfection of educational machinery and the development of a teaching class of scholarship and maturity, the establishment of principles applying in the testing of materials for knowledge values seems indispensable to the higher efficiency of the school as a diffuser of information. Confined to imparting but a small fraction of the total of knowledge, one would think no question could be of greater significance than that of the choice of materials. Every item and scrap of information should deserve its place in the information which the schools impart.

In the main the intent of curriculum makers has been to supply such knowledge as is needed in life. Various accidents and uncontrolled tendencies have, however, conspired to deflect the aim. Every school study represents a mass of experience with the world, and it is only with reference to comparative values that educational reconstruction is warranted. Whether the more salient relations of life are reflected in the content of studies is a necessary inquiry, but that the studies offered in schools in the past have been based upon certain relations to

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life cannot be denied. The actual choice of items of knowledge with which to build curricula has been swayed, however, by a variety of considerations in addition to considerations of evident utility.

The school is destined to become an all-important agency for knowledge diffusion. Hampered by the theory of formal discipline, it has dealt too little with vital facts. But this theory is becoming a thing of the past. The qualifications of teachers have been low, but better teachers are arriving. Masses of inert, conventional knowledge have clogged curricula, but the tendency is to substitute learning of proved value. Knowledge easily organised in pedagogical form has been too much taught, while knowledge by which to live has been learned by chance. There must be careful evaluations of knowledge, as well as excellence of school equipment and general administration.

In the performance of its duties as a central agency for accomplishing civilisation by means of knowledge preserved and disseminated, the school is undergoing change and improvement hardly paralleled by any other institution. From being the jest of literature the teacher has arrived at a status of service and social recognition which affords marked contrast with edu-

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cational conditions even a half century ago. Educational effort is characterised by unremitting inquiry as to better ways of carrying out the trust imposed by the public and wholesome unrest and aspiration for higher standards and excellence of performance. When the individual ceases to plan larger and better things in his own life he bids for stagnation, not to say decline, and much the same may be said of occupations and professions. That an employment is subjected to close scrutiny for defects and the discovery of means of larger service is a notable evidence of its evolution.

Readjustment to the demands of modern life characterises education as perhaps few other professions or branches of service. Educational questions are discussed with insistence and vigour, and guiding principles are being beaten out in a catholic research in which not only teachers and school administrators but the general public take part. Experimentation in curricula and institutions is steadily yielding results whose good effects are becoming obvious. From being confined to serving a relatively small number in limited ways the school aspires to reach all with the broadest assistance. Apprenticeship and home teaching having lessened, the school extends its influence into new

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channels of instruction, presenting instruction for the technical pursuits, through the higher institutions especially, and bringing moral and cultural influence to bear supplementary to family nurture.

PART THREE

THE MAKING OF THE CURRICULUM

XI

THE CURRICULUM AND DEMOCRACY

DEMOCRACY depends not only upon the general diffusion of knowledge, but upon the kinds of knowledge diffused. Confined to knowledge of production, the individual is slave, peasant or exploited factory operative. Knowledge of consumption alone makes one a parasite, while those expert in distributional knowledge wax rich and govern. It has commonly been accepted that democracy can survive only in nations of popular education. The framers of our government realised its importance, and provision for schools was made from the first. Jefferson and Washington were clear-sighted in their perception of the need of popular education. Likewise labour leaders have from the first espoused the cause of popular education, believing that in it lies the means of greater equality.

But it by no means follows that popular education guarantees democracy. Indeed it may be the source of undemocratic conditions, it may

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thwart democracy, unless the kinds of learning dispensed are such as to promote democracy. Does any one fancy that the teaching of history in the German schools promotes democracy? The mere fact of popular education by no means assures democracy. *Popular education may promote democracy only when the curriculum prepares the individual for the three great economic processes of production, distribution and consumption.* When the significant types of knowledge are unreservedly diffused throughout society class distinctions melt and democracy, so far as nature permits, must prevail.

How must the curriculum be formed in a democracy? First, all should be trained as producers. If all are trained as producers there will be a tendency for all to continue to be producers. Even very wealthy people who have been trained to produce would no doubt continue to be useful, empty and extravagant leisure having few attractions. Aimless idleness does not appeal to the man or woman who has been schooled in industry. Moreover, were every one trained to produce, which means educated to do some useful thing in the home, on the farm, in the shop or factory, in commercial establishments or in professions whose services inure to increased production, there would be

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throughout society an appreciation of the workman's needs and life which would make for sympathy and the square deal. If the sheltered classes knew from actual experience how slow and painful often are the processes of production, would there not be a new spirit in the world? Let one raise even one cabbage, he will then feel like paying the farmer a dollar for a head. Think of the human experience represented in the package of codfish which the grocer hands over the counter in the security of the village store. Men risked their lives, with women and children waiting on the shore, to capture that codfish. There is danger lest in the opulence of modern life and cities the fundamentals of production be lost sight of and wholesome sympathies be dulled. It is often noticed that when children of aristocratic families take industrial work in school they undergo a change of attitude. We can hardly expect one to be democratic in sentiments and in political expression if unacquainted with the conditions of labour. No democracy is possible without common acquaintance with production. Every public school should accordingly teach every pupil a reasonable amount of productional knowledge and train suitably in productional processes. The spirit of equality is engendered from ac-

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quaintance with the fundamental processes of production. Acquainted with labour, the wealthy on the one hand and the tramp on the other tend toward democratic citizenship.

Not alone for the creation of democratic sentiment is industrial training desirable for every child. Production raises society to a level below which democracy starves for lack of material support. The most progressive classes and nations are those where there is high wealth production. It is the skilled workman in Germany who is leading the way to better conditions in government. The producer is not only likely to be alert in social relations, but it is the massing of wealth from his labour which enables society to rise above the philosophy of serfdom. The slum dweller is a political reactionary. Advanced ideas receive little welcome below the level of skilled labour.

Training for consumption is equally necessary to democracy, and it is in the school that the more lasting lessons may be learned as to what to want and how to use. If the child from the poverty-stricken home learns what art and music have to offer for human happiness, what recreation and hygiene mean, what books and travels yield for the expansion of life, and what the amenities of life are, such child will grow up

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with redeeming aspirations not to be quenched without a struggle for democratic opportunity. The school may be a nursery of acceptable wants. But on the other hand, if the cooking classes aim to prepare meals on seven cents a day the normal ambition for a full meal may be distinctly discouraged. Let us say it frankly, our children should be taught to want many things beyond their reach. They should be made pungently but optimistically discontented with anything short of a generous life. Resignation and contentment with little are not virtues so long as privations are due to social maladjustments instead of the limitations of nature. No one should grumble because the day is hot, but he has a right to protest if an ice trust doubles the price of ice that cools the baby's milk. Democracy requires that the curriculum offer a proportionate amount of information of a want-producing type. Let there be democracy of wants and democracy of satisfaction follows. But there can never be political or economic democracy while numbers are willing to eat stale lunches in the sun. There is enough or can be enough wealth in the world to satisfy every reasonable want. It does not require a large amount of money to satisfy every want of fairly well-trained consumers. Eliminate

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nating the wastes of competitive consumption and the so-called conspicuous consumption, both phenomena of undemocratic character, the amount of wealth required per person in a civilised country for the satisfaction of wants would be easily within the possibilities of productive forces. Democracy has no motive power except in similarity in the strength and number of wants among different classes.

Economic democracy is rapidly being substituted in popular thought for theoretical political democracy. This means the abolition of unnecessary extremes of possession. The plutocrat and the pauper are alike foreign to the ideal of economic democracy. A more equitable distribution of wealth is the desideratum. The great public school system, then, would it hasten democracy, needs throw its forces toward the solution of the problems which lie in the way of more equitable distribution. Various studies and many specific topics of research here suggest themselves in connection with the knowledge corresponding to wealth distribution, but whatever specific materials of instruction are employed the net result should be an understanding of the forces which to-day determine the distribution of wealth and of the reasonableness of remedies proposed for ushering in eco-

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conomic democracy. Assuredly in the face of the greatest problem of modern civilisation, the distribution of wealth, the curriculum as one of the greatest stores of information should contain a large amount of the knowledge of distribution.

Democracy is born, partly of general information, but especially of knowledge of distribution. This is the critical information in the reshaping of society in the direction of equal rights. The new democracy of the United States to-day is growing up fed by the magazines which reveal a hitherto hidden knowledge of how wealth is apportioned. Things have been as they have been because the voter "did not know."

Let us say, then, that the three types of knowledge should be combined in the curriculum. They should no doubt be combined in about equal proportions, varying somewhat with the previous instruction of the child, especially that received at home and from his associations. The child from the wealthy home would require less instruction for consumption or that of a different character from that of greatest profit to the child from the tenements or the farm. The farm boy, while especially in need of more exact productional information than he has re-

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ceived on the farm, is especially in need of consumptional guidance. He needs to be taught recreation, social usage, speech and admirations. The children of the lower economic strata need lessons in citizenship and politics.

Now a public school system may contain all these types of knowledge and yet miss the point by differentiating pupils among the types of learning. It is not only necessary to have the various knowledges in curricula, but it is essential for democracy that the three types be combined in the education of every child. If one school offers nothing but productional information and training, and another offers predominantly cultural or consumptional training, and still another is identified mainly (which rarely if ever happens in the public schools) with distributional knowledge, you have an educational mechanism from which infallibly issue social inequalities. Trade schools are very good. They are needed. The rich manufacturer, on the lookout for labour, and the poor man favour trade schools. Society needs skilled producers. But let us not lose sight of the fact that teaching a trade is but a part of the duty of education. The necessity for trade training should not, by design, inadvertence or faulty pedagogy, be permitted to interfere with

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the development of the curriculum into perfect harmony with the ideals of democracy.

The need of productional specialisation is indeed great, but much training to that end may very properly be postponed to the age of eighteen or beyond—to an age when specialisation ceases to clash with the best interests of the individual and society. The forcing down of specialisation toward the early years of life is undesirable. It is not even to be excused because “the boy must go to work,” for what of our civilisation if children may not be allowed to stay in schools? The state, which provides education for all, halts in an illogical position until those for whom education is provided are enabled to accept the education which it offers.

Moreover, are we not hasty in admitting the claims of productional specialisation? The division of labour has proceeded to great lengths. Can it go much further? Is it not still the man of general intelligence who is in command? A good many manufactured articles, produced under minute division of labour, are really not very necessary. The educator should not, it would seem, feel a very heavy responsibility to hasten the industrial maturation of the boy who will assist say in the manufacture of giant fire crackers or chewing gum. We are at a critical

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point in the shaping of popular education. Shall we recognise social inequalities as they exist to-day and perpetuate them by means of unduly differentiated curricula and schools, attendance upon which deflects the pupil toward a social class? Shall education yield to undemocratic tendencies or shall it on the other hand correct undesirable inequalities in society by bringing to bear its irresistible pressure? Certain it is that education has it in its power to control deeply the currents of civilisation. What China was for a thousand years was determined by the Chinese classics in the hands of her school children. The Jew has been nurtured on his peculiar literature. The stamp of one's learning is ineffaceable. Would we promote democracy, let us have a care to the kinds of information used in public schools. There are tests to be applied to the minutiae of information, but here we are concerned with classes of information. It is vital to democracy that the pupil be supplied with ample and pertinent knowledge fitting him for the fullest contact with society in the great relations of production, distribution and consumption.

XII

KNOWLEDGE VALUES

THERE is an instinct and a passion for knowledge, which shows clearly in the intense curiosity of children. Human nature might be graphically represented by a question mark. This instinct for knowledge is so greedy that rather than wait for tested knowledge, small in quantity, the individual will often satisfy the craving by accumulating a large bulk of spurious or worthless information. The false science of primitive peoples, their cumbrous mythologies, the unconscionable rubbish of the middle ages, and the abundant pseudo knowledge that exists to-day are evidences of the inherent unpopularity of the sentiment expressed by Bill Nye, "I'd rather be ignorant than know so darned much that ain't so." The attitude of the scientist, that of suspended judgment and critical evaluation of ideas, marks a high level in race or individual.

Before entering upon an examination of the values of knowledge there is need of caution

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lest mental products miscalled knowledge be confused with knowledge. Of philosophy President Jordan has said: "Philosophy is not truth; when it becomes such it is science." Knowledge may be likened to money some of which was coined in ancient times and some of which is fresh from the mint. And like coinage, knowledge, so-called, may embrace counterfeit values. Into the circulating medium of the mental world have been injected large issues of spurious products. These consist of dreams, whims, fancies, random impressions, unverified opinion, dubious pronouncements, erratic inferences, preconceptions, prejudices, faulty history, mythological, super-sensational and intuitional phantasms, imperfect observations and bizarre doctrines.

Knowledge is something in the mind that corresponds to reality. It is the product of experience. It is the result of one's direct experience with the world or the direct experience of others which is annexed by processes of learning to one's experience.

I do not know by direct experience that Julius Cæsar invaded Britain. That is a fact that is incorporated in my knowledge from the experience of witnesses. We have direct experience with relatively few of the facts that

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form our stock of knowledge, but all facts not of our direct experience have been gleaned by the direct experience of others of our own or past times. All knowledge rests back upon the operation of the senses, and any combinations of ideas, as in inventions, whether in mechanics, philosophy, literature or mathematics, are, if real knowledge, verifiable by tests of direct experience. Thinkers and inventors by combining ideas gathered from their own and others' direct experience create what may be styled anticipatory knowledge, that is, a knowledge which is subsequently verified by experience. In any case, however, knowledge to be real must square with experience.

The most compact and serviceable knowledge is that which consists of verified principles and general ideas. The billions of separate experiences of individuals with reality are amenable to classification more or less complete. The uniformities of nature permit the formulation of general principles. We know well at what temperature water will boil under a given air pressure. The specific gravity of gold may be settled once for all. Steadily science has mastered and reduced to class the multitudinous phenomena of the physical world. In the world of life and growth, espe-

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cially in dealing with the most complex form of life, man, the perception of general principles and the discovery of unvarying uniformity makes slower progress. A network of intertwining laws challenges to supreme effort in the fields of sociology, medicine, psychology, and education.

The welfare of society demands not only that the curriculum represent the fundamental classes of knowledge, but also that whatever is taught, the facts themselves, should be of real value. The relatively worthless should give way to the more profitable. If knowledge exists for purposes of adjustment, it should be possible to evaluate facts according to their actual service in promoting right relations. The schools dispense a vast amount of information. There is a vast amount lying outside of the curriculum. Is there material in the curriculum that ought to come out and is there material outside the curriculum which ought to go in? By what are we to be guided in saying whether a piece of information should be taught in schools? By what principles may knowledge now in the curriculum be judged? In view of the past of education it seems unwise to assume that the maximum of utility is represented in the conventional studies or that a

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gleaning of knowledge from non-scholastic sources for inclusion in the curriculum would not be a profitable undertaking. How may we know what to choose and what to reject?

First there is the test of introspection. What are the situations in my life in which I need knowledge? Where have I been at a disadvantage because of ignorance? What losses, failures, blunders, sufferings and omissions have occurred because of lack of information? In view of the large area of life which humanity shares in common, an area lying outside the pale of our specialisations and vicissitudes, we may derive the values of knowledge to no small extent from recollections of our own experience and our consciousness of limitations and circumstances to-day. It should not be necessary to learn the more valuable lessons of life by experience. They should be learned in schools.

That information of the utmost value for adjustment lies outside of the curriculum is shown, for example, by the non-inclusion of that which deals with sex relations. On the other hand, when reputable persons say that they are not aware of the value to them of such and such subjects which they pursued in school, the character of such subjects is seriously impeached. A banker, who was formerly a teacher, ques-

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tions the value of the "objective complement" and similar topics in grammar. We should be impressed with such comments. Indeed, and here let the humility of educators assert itself—is it not for the man outside of the schools to say what shall be taught? At least is it not from the experiences of the multitude that the educator has any warrant whatever for electing this or that bit of information for impartation? Possibly the criticism of the layman would not be a safe guide to educational reconstruction, but the life experiences of the layman nevertheless are the data from which the schools may infer what to teach. Let the information by which one thrives, and for lack of which another suffers, in body, purse or repute be panned out of the gravel of inert matter. In this process the testimony of mature persons of discrimination should be given much weight. No more than a court should give decisions without taking testimony, should the educator decide the merits of information without the weighing of evidence.

The collecting of evidence as to the demonstrated value of curriculum materials should be a distinct and positive activity. Judicial notice, so to speak, has already been taken by progressive teachers of what is going on in the

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world about and the glacier of educational inheritance has been thawed deeply in spots, but for the further development of education it would perhaps be a wise project to establish educational commissions for the taking of testimony relative to information values, calling as witnesses men and women of all classes—physicians, editors, farmers, cooks, bookkeepers, invalids, criminals and outcasts. Guided by such evidence curriculum makers would be able to expunge non-vital information and incorporate in courses of study the most important items. There would result fewer cases of misfortune from ignorance. Is it not begging the question to assume that the conventional studies contain the saving knowledge? Are there not many studies as yet unorganised but representing welfare intensely? Instead of a few textbooks, a dozen or two for a high school course, possibly there should be a hundred—of varying sizes.

It would be well to submit school books to the criticism of men and women whose experience has peculiarly qualified them for appraising the value of items of information contained therein. For example, the banker should be a good judge of the relevance of the items and problems gathered under the head of banking in arithme-

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tic. The physician, who deals largely with the results of ignorance, should be in a position to advise what to leave out and what to include in a textbook on physiology and hygiene. Were physicians to testify in regard to the curriculum there would be fewer cases where the knowledge to live by is omitted in favour of that which perhaps forms a part of a logical system but which may not bear so directly upon well being. From persons who have failed might be drawn suggestions for success.

Assuming a curriculum comprising in well-balanced proportions the knowledge underlying production, consumption and distribution, let us note any principles applying to the choice of particular materials.

Productional knowledge related to the more important industries and most tending to an abundant creation of wealth is evidently a desideratum. The industries the most fundamental and employing the largest numbers would accordingly make the largest demands for expression in curriculum form. Of such are agriculture, manufacturing, mining, trade and transportation. The impossibility of foreseeing accurately at an early age what occupation the child will pursue suggests the wisdom of scattering throughout the entire public

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school system fundamental knowledge from the primary wealth-producing occupations. Even should the child enter secondary industries or professional life the knowledge of the arts and industries which have a racial and economic priority will make for wider sympathies and a sense of social interdependence. Misunderstanding and class antagonism could hardly exist if all were taught in the schools the simple elementary lessons of tilling the soil, caring for domestic animals, and working with the commoner tools. For the girl an acquaintance with the productive work of the home, as cooking, caring for the sick, making clothes, eliminating waste, gardening, repairing and making over materials, and acquiring domestic arts would be indispensable. The fact that the majority of women contribute to production as homekeepers is sufficient warrant for teaching to all the fundamentals of homekeeping science. A goodly proportion of what the boy and girl learn in the school from the very first should consist of knowledge assorted from the basic wealth-producing arts and industries, and none should escape this instruction.

With inert materials cast out of the curriculum the amount that might be learned about productional processes in a few years would be

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found surprisingly large. Every one might know the essentials of one if not several trades. The productional incapacity of most persons is due to not having been taught. How long would it take under good instruction at a proper age to learn the plumber's or baker's trade? The existence of a large amount of unskilled labour is a reproach to educational efficiency. Why should not every one be a skilled worker, or at least fundamentally prepared for skilled work? The essentials of the great productive industries may easily be supplied to all, as a basis for any later specialisation and as a remedy for social misunderstandings and class aloofness. The experience of thousands is that their instruction in school veered away from the arts and industries and left the learner every year a little further away from the employments to which the prime creation of wealth is due. The possibility of teaching a large quantity of productional knowledge without indifference to other desired kinds is doubtless but slightly realised.

In administering productional knowledge to younger learners the insistence of the factory for skill should be largely disregarded. Skill results from knowledge applied to a process during a considerable time. To train highly

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skilled workmen requires a length of time not at the command of the public school with its complex duties. A broad productional knowledge is possible in the schools, the impartation of which should not be interfered with by prolonged attention to the acquiring of skill.

An important element in productional knowledge is that having to do with natural resources, wealth resting upon natural resources and human effort. The right attitude toward nature in its economic aspects leads to increased production. The wastes of fertility by erosion and the disposal by ordinary methods of sewage, bearing invaluable phosphorus, and the economic importance of birds deserve consideration. The bounty of nature, whether of forests, fish, fur-bearing animals, coal mines, scenery, or waters available for irrigation, dictates many a specific lesson making for the continued well-being of man.

Inculcating the spirit of joyful labour would result in vastly increased production. While extreme effort is made in a limited number of industrial situations to-day to exploit the available energy of workers, dawdling and unhappy leisure also prevail. Some are driven to the verge of exhaustion, while among large classes, as the children of well-to-do parents living in

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cities, women of the prosperous type, and men of means or easy professional demands, exist ennuï and discontent due to lack of plain work. If such industries as poultry raising, gardening, farming, stock raising, woodworking, and other employments possible at or near home were taught, the amount of energy set free in wealth creation would be much greater, and many a bored citizen would experience the pleasure that comes only from physical expression. The cult of sports and games entails one of the greatest losses of productive energy. Barred by caste considerations from employments pursued by inefficient distributees, aristocratic classes developed expensive and time-consuming sports. While games and sports have peculiar values not here questioned, can there be any doubt as to the studied irrelevance of much recreation and its testimony to a wrong attitude toward labour? Knowledge taught with a view to bringing about a rational attitude toward taking part in raising things and making things of real use would swell the total of real wealth in a large degree. To the non-productive cult of sports and games the educational system has yielded too ready assent.

In a word the schools should teach how wealth is created, from what created, and the

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spirit of creation. The typical tools used in the various major industries should be made familiar to all by explanation and use. The evolution of tools and instruments suggests an important chapter in such instruction. As direct acquaintance as is possible should be sought with the characteristic processes in agriculture and in the manufacture of iron, wood, fibres, metals and materials of commonest use. The conditions uniting to maintain a high level of production, as health, cheerfulness, æsthetic appreciation and productional organisation, require special attention. Such conditions as paralyse production, as indifference and animosity toward the work on which one is engaged, call for remedies that the curriculum might prescribe in its studies of production.

All should be familiar with the principal materials employed in manufacturing processes, whatever their origin. A great deal of obscurity rests upon materials in common use as meats, paper, spices, gums, metals, foods, grains, and pottery. Perhaps the industries of one's own neighbourhood are understood, but often not even these. The industrial worker may not even have a vision of the processes through which the article to which he contributes a part passes, and his vision of the

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origin of materials is often unbelievably limited. Despite bulkiness of publications and the altitude of the brick walls of factories and the breadth of acres comprising farms, there is little in the productional system which may not be readily apprehended in outline and serve as a basis for a far more general productional intelligence than prevails. One may spend a lifetime in thought upon improvements of the mowing machine, but a few moments' consideration suffices to inform the student of its principles.

The school may wisely attempt to inspire with inventiveness, resolution, the adventure sanctioned by civilisation, and the spirit of personal achievement in making two blades grow in place of one. The pride of large production may be encouraged, and the producer be made to rise in the social scale to his proper level. The suggestion of ideals of production, taking the place of anti-productional militarism and commercial exploitation, makes for increase in the world's wealth.

A general survey of the methods of producing and acquaintance with the principles applying in the various industries, foreign as well as local, are desirable during the earlier years of one's life and before the choice of an employ-

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ment is fixed. Some concession may be made to local materials and processes, but the impossibility of wisely determining careers by the accident of locality of birth, or childish impressions, is evident to every one who remembers his first ambitions as to a life occupation. The inability of the immature to decide their life occupations admitted, the foisting upon them of premature determination of vocation is to be guarded against. Because a boy is born in a fishing village in no way commits him to smell mackerel the rest of his days. The flow of profits to an industry may wisely be allowed to determine who and how many should engage in it.

Whatever facts having productional value are assembled in the curriculum, they should be referable to the principle of maximal usefulness. In determining the relative utility of productional knowledge the experience of expert observers should count for much. If many have felt the need of certain information many times, such information commends itself for admission to the curriculum. By interviewing producers, and the unskilled who have failed for lack of specific information, it should be possible to construct studies having a maximum of facts promoting the welfare of the would-be

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producer. The main lines of industry are to be sought out, and the most common and indispensable products noted. The forces playing a part in the creation of the volume of goods are to be analysed and the significant fact having value as a guide to future production carefully retained. Knowledge which lurks in the trades, where indeed much productional knowledge has developed unnoticed by the schools, should yield its more valuable portions for the building of a body of learning for general impartation. What knowledge do they have who are skilful, industrious, employed? What do they lack, who, rich or poor, are ignorant of production, consuming without adding to the world's wealth? The inquirer may find in the workshop, the quarry, the factory, and on the farm typical situations calling for knowledge, and from such situations that productional knowledge having greatest worth may be derived. Ask yourself when you see a watch, a garden, an engine, a gun, a pound of butter, a sack of flour, a typewriter, a pencil, a can of fruit, a picture moulding, a wicker chair, a tile floor, a nickel-plated knob, a printed page, a piece of lead, a silk tie, or a button, what you know about making these things. Ignorance points to defects in education and suggests ad-

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ditions to the course of study. Notice how many times a day you find yourself in need of knowledge, especially if you start out to make anything. Perhaps you were trained to use but not to produce, to wear but not to shear the fleece. Were it not for the knowledge picked up casually outside of the school, the student would oftentimes be the most helpless of beings. Not until the curriculum pursued during the earlier years of schooling, to confine the discussion to the period ending with the close of the high school course or thereabouts, is sufficiently based on the productional needs of the individual and society can it be defended as a generous preparation for life or merit enthusiastic public support.

The productional aspect of the work of the teacher, physician, lawyer, statesman, and business man should not be overlooked, but more truly discriminated. Not in the manipulation of crude materials does production alone exist. The productivity of ideas and of system in carrying on business demands liberal treatment in a curriculum designed to maintain or increase wealth production.

Did the production of wealth imply its distribution in proportion to one's contributions to the wealth total, one's knowledge as a pro-

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ducer would also suffice for him as consumer. But the fact that wealth is not divided upon the basis of one's contribution to its production is obvious. There accordingly arises a need for the incorporation in the curriculum of kinds of knowledge fitting the individual to make sure of his share of the wealth total. What principles should govern in the selection of curriculum materials designed to train the efficient distributee?

Some light is thrown upon this question by considering the knowledge characteristic of those who are successful takers of wealth and the knowledge or ignorance of others who share imperfectly in what is produced. What sort of knowledge is it which enables one to share freely in the social total of wealth and lacking which another receives only the amount required for crude maintenance? That knowledge which is the advantage of one class and whose absence is a primary cause of the economic disadvantage of other classes is evidently such as curricula formed under the democratic ideal should include.

The intimate relation naturally existing between one's efficiency as maker and taker is not to be disregarded. To a large degree poverty is due to absence of production, and

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to make the individual a larger producer is to increase his receipt of wealth. Unless wealth is created there can be none to apportion, and even under a faulty distributional system the inefficient distributee is bound to receive more wealth as his share if he live where a high level of production prevails. The skilled labourer requires a certain amount to live on to maintain his productional efficiency, and regardless of whether or not he knows how to assert his claim to income he is sure to be lifted to a standard of living not possible in communities where a low level of production obtains. Despite such considerations, however, the advantage of special distributional information is notorious. The inventor may not rely upon even vast contribution to wealth to insure him income, and on the other hand the riches of ambiguous promoters may rest on a basis of production so slight as to be negligible.

The peasant and sweatshop operative are notable as inefficient distributees, and alike represent ignorance of certain classes of facts. Their indifference to civic administration and public questions, and their blind adoption of social conventions, tend to their undoing. The Russian peasant goes to war to support the private business deals of the court clique. The

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sweatshop worker gives his vote away or is jockeyed out of it by specialists in politics. Indifference to acquiring the ballot and ignorance in its use account in some measure for meagre incomes. Ignorance of law and government characterises the impoverished classes everywhere. Such knowledge as makes for intelligent voting and dispels obscurity as to the true inwardness of political manœuvres and governmental policies lies at the threshold of distributional equity.

The farmer is an example of the individual bound by custom and blind to the operation of distributional laws. Historically, with special exceptions, the farmer has been ultra conservative in regard to political opportunity. He has voted "straight" and accepted policies if labelled with traditional names. His economic disadvantage issues from political lethargy, which some have been pleased to term stability. He has looked for leadership to men from other callings, and has uniformly been represented in legislation by men whose first obligations were to other occupations and other interests. How complete a divorce between productional ability and civic efficiency may exist is illustrated in the necessity felt by the labour party in Australia to select their leaders from the younger men

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in the professions, whose fidelity might be counted on and whose insight into government was superior. To the practice of securing such leadership the labour party in Australia owes much of its recent success. The American farmer has lacked in civic information and has been unsuccessful in effectuating a real representation of his interests through his supposed representatives. Such knowledge as would qualify the farmer, labourer and housewife to mould the laws, either by personal attainment or by making use of the talents of others, evidently should be liberally supplied as parts of an ideal curriculum by which these classes are mentally nourished.

Knowledge affording an historical and sociological approach to public questions is of high value. With advancing civilisation evolution must supersede revolution. The interlocking of all social interests makes revolutionary change destructive and puts a higher value upon constructive measures than upon blunt demands and drastic revolts. For the evolutionary approach to civic problems related to distribution a large view of social principles and economic history is demanded. This the curriculum should make possible.

The prominence of organisation in affecting

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income suggests a large field of necessary information. The competition of individual with individual has increasingly disappeared before competition of group with individual, a most unequal contest, which in turn must yield to competition of group with group. The individual who stands unorganised before organisation suffers exploitation without possibility of successful resistance. His salvation depends upon his seeking shelter under an organisation with others in like status. The depredations of the trust are made possible by the unorganised status of large numbers, who might by special organisations, or, preferably, by engaging an already formed organisation, their government, set up defences against monopoly profits, extortionate charges, and the seizing of natural resources.

What organisation is, how effected, its relation to existing laws, its evolution, the testimony of other countries with reference to the evils, benefits and control of organisations, and the special information involved in advancing desirable and checking undesirable organisations must enter into the public consciousness far more than heretofore if the extremes of wealth and poverty which are mounting up under modern conditions are to be replaced by

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such diffusion of wealth as makes for general welfare. Drill in organising meetings, putting questions and appointing committees should be among the exercises of all public schools. Anything like economic parity is impossible as long as the knowledge peculiar to organisation is a sealed book to large numbers.

Of special importance is the knowledge which reveals how government may go astray. The problem of graft has engaged the best energies of special students. Able writers have visited the very laboratories of graft and, so to speak, microscopically examined graft cultures. Yet the difficulty of learning the devious ways of graft has been so great, notwithstanding the simplicity of the subject to the initiated, that the general public is still in the kindergarten class with reference to fulness of knowledge about this most important subject. The curriculum should certainly contain the most significant facts that have been established on the subject of the relation of private interests to city, state and national government and fairly show the typical ways in which dishonest or overtempted men betray the public. Let graft, as a preventive study, by all means find a place in the civic instruction imparted in the schools, care being taken lest the cunning of grafters

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be an ideal rather than an object of aversion.

Knowledge should be laid bare to the public, through the curriculum, touching the operation of laws that have much to do with perpetuating or creating miscarriage in distribution. The tariff, under which many believe the swollen fortunes of some and the anemic fortunes of others have been determined, requires illumination with the aim of general welfare in view. Untested tariff theory and *ex parte* legislation should give way to intelligence on so important a matter. The confessed ignorance of a large part of the public on such a matter as the tariff argues how destitute of vital distributional information much of the teaching of the past generation has been. Such ignorance is *prima facie* evidence of serious omissions in a course of study in public schools designed among other aims to help the citizen to suitable adjustment in his economic relations.

The enormous power of systems of taxation to throw wealth to and from distributees must be reckoned with in compiling that information which makes for intelligent citizenship. And upon this subject popular ignorance is notorious. Were the subject of taxation as well understood generally as the military strategy

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of the American revolution, a system of assessment that persecutes two hundred dollar pianos and is indifferent to millions in stocks and bonds would ere this have been materially modified. Wherever law or custom affects income, there exists a node around which educational subject matter should be organised.

Far too little light is shed by the educational system upon the transmission of wealth by inheritance. So uncritical is the popular attitude with regard to the subject of inheritance that grave injury is often suffered without complaint. The right to transmit property is a purely legal invention, resting upon social approval. The decedent by the fact of his death loses physical control of his goods. Such rights as exist with reference to their disposal thereafter are conceded by society. It accordingly implies a non-alertness among the public when legacies are passed irrespective of the interests of the public as occurs when vast amounts of socially created wealth descend by will—of the individual. The critical relation of the laws of inheritance to married women should itself make imperative a far greater illumination of the general subject than is common. Much of the knowledge, which attorneys

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and probate judges mainly possess, on the descent of property should be a common possession.

The possibilities of wealth arising from interest-taking appeal more especially to the initiated. The relation to individual welfare of military expenses, necessitating the issuance of national bonds on which the citizen and his descendants will pay charges, deserves more attention than it receives. The almost limitless power of capital over states, municipalities, and nations, through loans representing a mortgage on the future production of society, would if more graphically appreciated, militate against extravagant expenditures. Indeed the poorer the individual is the more is his need, apparently, of schooling in interest. The usurious loan office exploits the ignorance which prevails among the needy as to the significance of interest.

The rule which should prevail governing the choice of distributional subject matter for the curriculum is that of consulting the points of distributional maladjustment in society and formulating knowledge specifically designed to effect improvement. The essential fact is to be sought which gives exploitative power to the large taker of wealth, and ignorance of which

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lames the inefficient distributee. If two men produce an equal amount of wealth, and one grows rich and another poor, let the knowledge functioning to produce the disparity be sought out and thrown into the stream of common information. If the lawyer's office or the lobby of the capitol holds secrets inuring to the hardship of the average citizen and giving the insider unconscionable advantage, let such knowledge be disseminated. Occupational knowledge, so far as it is distributional in character, should be a common mental content, that greater fairness may exist in the relations of all toward the wealth total.

The curriculum should open to receive information not now included, knowledge which in some cases needs be dug out of its matrix in quasi predatory occupations. Such information as tends to place equal producers of wealth on a parity as distributees and correct the anomalies which are everywhere attracting the attention of thinking men is highly desirable. The curriculum of the more common schools is notably lean in information vital to distributees. And indeed what little appears under the term civics or political science is often a mere formalism affording little real insight. Of the two governments, that on paper and that of

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reality, knowledge of the latter is for practical purposes quite superior.

In the choice of subject matter whose purpose is adjustment to ideal standards of living, principles are to be observed which rest on the most usual needs of consumption. Such knowledge as is commonly employed in the culture of the refined and discriminating commends itself. Models of living based on wise and worthy characters form no small part of desired culture. Considering the limits which must always prevail with reference to the wealth the individual may employ for the gratification of his wants, the economical expenditure of money and the avoidance of waste in the use of materials are especially important. The opening of the gates to larger consumption by social ownership, as of parks, art galleries, books and facilities for travel indefinitely expands the possibilities of consumption.

As a basis of well-being health deserves special emphasis. Both ideals of physical perfection and specific information for the preservation of health and for longevity are required. All enjoyment of wealth miscarries in the absence of physical integrity.

Related to hygienic knowledge is that which inspirits life by recreation and diversion.

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Those who do not know how to play and who fall victims to too great intensity and concentration in business suggest a wider diffusion of knowledge tending to increase the joys of life. Many who are the most laborious, and who because of their services as producers would especially seem to merit relaxation, are untutored in diversion and spend monotonous lives. The spirit of play, rightly directed, is an important element in the training of efficient consumers.

Art, poetry, music, travel and social situations of æsthetic tone, are identified with the higher uses of wealth. It is unfair to deprive the learner of such introductory knowledge of the higher goods as will enable him to find solace in literature and artistic creations. The blacksmith who can read with appreciation and see with feeling is a type which more evenly balanced curricula should make more common. Shakespeare is a part of an ideal equipment of knowledge as well as how to count. The indictment against polite learning is not that it is in itself not related to welfare, but that the schools too often have in emphasis upon it fallen short of fitting for the various other demands of environment. Emphasis has been placed upon partly irrelevant culture and some of the basic knowledge required for rais-

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ing standards of living among all classes has received too little attention.

Relevant consumptional knowledge is of superior importance inasmuch as the processes of production and distribution culminate in the use of goods. To produce and share is merely a step toward the application of what is produced to the various needs of the user of commodities. It is only unwise or excessive consumptional or cultural training which may merit criticism.

It may be objected that the enjoyments of life are far broader than implied in the consumption of manufactured articles and goods having commercial value and that the higher values are those to which economic terms do not apply. For example, friendship is not bought or sold. But even the higher values appear in association with leisure, health and a prosperity resting upon wealth accumulation, and a liberal use of the word consumption may be permitted to include the amenities and relationships which thrive best where wealth abounds and in social strata inheriting the culture which formerly acquired wealth made possible.

Under-education for consumption is revealed in low standards of popular music, shapeless

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architecture, ill-kept homes and streets, unjustifiable fashions and sensationalism in literature and manners. Great areas of life exist, as in the slums, where there is lack of knowledge as to how to make good use of what little wealth is at hand. Intemperance, vice, gluttony, the unwise use of patent medicines, crass behaviour, and psychical deafness to the higher notes in human life, wherever displayed, show the need of instruction in the consumptional relation. Barbaric display and the unrestrained expenditure of money for caprice and emulation and the erosion of wealth through so-called high life indicate that not alone in slums and hovels is revealed the prevalence of faulty consumption.

How inadequate the culture which leaves the multitude lacking in essentials of rational culture may be inferred. A conventionalised culture, with over-attention to the more exceptional social situations, has failed to give the help to the ordinary consumer which it should be the aim of the school to provide. Foreign language, with its insinuation of ample means to meet the expenses of travel and leisure for social intercourse in distant capitals, exotic art pursued as introductory to seeing originals in European galleries, and ideals of sport de-

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veloped in the leisure class *par excellence* of England have figured in cultural training often to the neglect of instruction making for wise expenditures and simple enjoyments among the ninety and nine who have but a few dollars to spend.

As deeply affecting the circumstances under which happiness is attained, moral training becomes of imperative value in the school. The present lack of definiteness in moral aims, resulting from the collision of evolution and statism, of a moral code derived from the theory of present adjustment and of one of tradition, should not long militate against efficient moral instruction. By consulting the maladjustments from which one suffers and which are traceable to the volition of others, it becomes merely a matter of inquiry and scholarship to set up a moral code fairly comprehensive. A code so derived must necessarily be one of detail, and while built on long recognised moral aphorisms will surpass traditional codes in fulness of specifications. So much of moral conduct is habit rather than the conscious recognition of principles, that moral instruction which does not particularise is but slightly efficient. The learner must know that this, that and the other particular act lead to specific injuries.

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While uniting on the same general moral principles men make war for or against human slavery or cut one another's throats for the good of a cause theoretically common. The value of general principles as incomparably useful knowledge in many of the relations of life yields to the superior value of specific habits in the moral sphere. The general principle in physics will be applied by the carpenter if he remembers it, but to insure the application of a moral principle, with personal advantage surging contrariwise, the principle must be imbedded in a moral habit having in itself strong compulsion.

XIII

SOME PLACES WHERE KNOWLEDGE IS NEEDED

*Education
or
Citizenship!* PARTICULARLY on the side of the relations of the citizen to government is there need of instruction. A large number of the political evils of the day flow directly from torpor and lack of vision on the part of the average citizen. The ignorance of the voter is the opportunity of the grafter. When it is still doubted if the voter is sufficiently informed to warrant direct legislation and truly democratic government, as opposed to the delegation of governing power to legislative or representative bodies, there can be no question as to the imperfect civic knowledge of large numbers of the electorate.

Current history teems with evidences of the need of a more thoroughgoing training for citizenship than the world as yet knows. Society cannot safely permit small groups to be the only possessors of the special knowledge of government. Democracy implies that every citizen be something of an expert in govern-

Some Places Where Knowledge is Needed

ment, certainly to the extent of discretion regarding public questions.

The multiplication of offices and boards necessitates more than casual preparation along legal lines. To be an intelligent client requires more knowledge of law than the schools as yet equip the graduate with.

The universal tendency to conduct business in corporate organisations calls for a wider knowledge of corporation law. References to the organisation of new corporations for business, banking, religious and other purposes abound. Real estate transfers imply an extensive law. The increase in the number of public offices and the fair probability that the citizen will be asked to serve in some public capacity suggest the wisdom of more widely diffused information relative to public office, and especially acquaintance with the highest ideals of office holding, with no small attention to notable cases, ancient and modern, of exemplary service rendered the public by office holders. *Saw*

Not less than the office holder does the voter need a preparation rarely afforded. It commonly occurs that the leading name on a ticket receives many more votes than candidates for other offices. Lack of interest is usually associated with lack of knowledge. Agencies have

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yet to be created that will provide the voter an adequate supply of actual information regarding candidates and measures. The extent of genuinely enlightened voting in a popular election can be only estimated, but it is likely that blind and ignorant voting prevails to a degree that should cause the greatest concern in view of the tendency to transfer law making from so-called representative bodies to the people.

When in various state elections only 60 or 70 per cent. of the total vote is polled it is evidence that there is indifference based on lack of understanding issues and candidates. Even in the most uneventful village campaign it is probable that there are dormant issues which if exploited would mean much to the community. Indifference, whether among the undeveloped and thoughtless or among the educated, implies ignorance of civic possibilities.

Education in government would presumably do away with bribery. The informed voter realises that the advantage to the state, which is his advantage concurrently, accruing from the best possible use of his ballot far outweighs in value the market price of ballots in his community. Accordingly no price that may be offered will tempt the voter of enlightenment and imagination. Lacking knowledge to evaluate

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the ballot, the voter is a willing victim to gift cigars, political beer keg parties, and passes and franks distributed by corporations.

It has been thought that the rural voter was largely immune to bribery. That the rural voter has, in this respect, been idealised is supported by such revelations as those of Adams County, Ohio, in which county nearly 2,000 indictments were returned for the sale of votes in the election of 1910, and about the same number of convictions had, one-third of the total voting population of the county being disfranchised and otherwise penalised. Such conditions prevailing in an agricultural county of a State which as properly as Virginia might be called the "mother of presidents," and similar conditions being believed to exist in counties in northern Ohio popularly known as "boodle counties," and in other States, the improbability of the country voter seems evident.

To a large extent popular ignorance of law might and should be remedied. At least a bird's-eye view of the field of law might be had and an acquaintance with the central ideas and the great landmarks be gained. Though it is said that the man who is his own lawyer has a fool for a client, a general knowledge of the main legal doctrines, and especially a knowl-

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edge of the historical background of decisions and rules is desirable. The law itself would profit from having its mysteries exposed to Philistine gaze and any irrationalities treated lightly. Largeness of view quite often develops outside a science or occupation and reform movements are begun that would not originate among those most intimately concerned. The tendency in various sciences is to simplify phraseology and select the fundamentals for diffusion throughout society. In many fields class knowledge is being freed and vocational secrets exposed. There is as much need of legal extension as of agricultural extension or college extension in any line.

The need of popular knowledge of law is seen in unwise litigation, unconsciousness of legal rights and remedies, confusion with reference to legislation, and expensive mistakes. Ignorance is always expensive, but in law particularly so.

Ignorance vs. crime The interrelation of ignorance, intemperance and crime is forcibly put by Warden Wolfer of the Minnesota state prison at Stillwater, who says: "Ignorance, or lack of education, and intemperance travel hand in hand. It is my belief, based upon 38 years' prison experience,

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that ignorance and intemperance are the direct cause of at least 80 per cent. of all crimes committed."

The cost of crime is so enormous that it would seem a step of the greatest economy for additional educational expenditures to be made with a view to decreasing the expense of it. The State of Iowa expends as much upon the penal and charitable institutions of the State as is spent upon all the state institutions of learning within its borders. If educational effort were focussed upon crime prevention, the saving in the expense for crime would no doubt pay many times for the special instruction.

The vast cost of crime is inferable from numberless references in the press to criminal interference with life and property, to court and jail expenses, and to police and other forms of protection requiring heavy outlays of money. A statement of the cost of crime is quoted:

"Crime costs the United States \$100,000 an hour.

The yearly cost of crime in America is estimated at \$1,373,000,000.

If crime could be checked absolutely for eight months the savings would pay the national debt, \$964,000,000.

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The annual imports of the nation are \$100,000,000 less in value than the cost of its crime.

American gold mines yield less than half the nation's annual crime expense.

The market value of all the horses, sheep and cattle in the country is about the same as the annual crime bill.

The coal, wheat and wool produced annually in this country represent a value about the same as the annual cost of crime."

More practical moral instruction reaching every child seems to be called for. Were the nature and results of trouble-creating acts made known in ways pedagogically effective, a large percentage of juvenile delinquency, due in large part to ignorance and inexperience, would be avoided. There is need of a rational, workable system of ethics and of expert methods of moral teaching.

The improvement of standards, resulting in decrease of crime, better ideals, more rational ways and larger happiness, is surely one of the major duties of education. This duty can be performed successfully only when a careful inventory of ethical and cultural lapses is made and specific instruction devised against such maladjustments.

as the people are no longer pay the money out of crime pay the

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The losses and sufferings due to preventable ill health tax the imagination. A large part of the country population and the city population as well suffer from unnecessary ill health. Good health is an important factor in the production of wealth, let alone the satisfaction of good health to the individual in his life as a consumer. The need of knowledge along health lines is widely attested. Nowhere does ignorance exact heavier penalties.

1,500,000 persons die in the United States every year, many of the deaths being preventable. It is estimated, no doubt too conservatively, that for every death there are two additional persons sick, a total of 3,000,000 sick. The greater part of the sickness is preventable. Inasmuch as well taken care of persons are almost never sick, it is probable that 95% of all sickness could readily be prevented. Estimates of the economic losses each year in the United States due to sickness range from \$1,500,000,000 to \$3,000,000,000. If by far the greater part of sickness could be prevented, there would seem to be no more profitable undertaking than the promotion of health, and no form of knowledge more urgently needed in curricula than effective hygienic science.

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Tuberculosis might be made as rare as small-pox, but on the other hand the death rate is high from the disease, being 183.6 per 100,000 in 1907. 500,000 persons in the United States are suffering from tuberculosis. One-seventh of all deaths are due to it. The economic loss in the United States in 1909 from tuberculosis is estimated at almost 50% above the value of the wheat crop of the country.

In 1908 there were 35,000 deaths from typhoid fever and 350,000 cases in the United States. Local sanitation, it is said, would have prevented 75% of the cases, while sanitation for the country at large would have prevented most of the remaining cases. Whole families in the country are often almost exterminated by typhoid fever developed from infected wells and unsanitary surroundings.

Typhoid has been nearly eliminated in communities where intelligent precautions have been taken. The results of education appear at once in decrease of the death rate from this disease. About 80% of the cases of typhoid develop from drinking impure water, a cause easily removed by simple scientific methods.

Pneumonia causes a high death rate, in some cities one-sixth of the number of deaths. Methods of prevention, similar to those for tubercu-

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losis, are well established and would prevent the majority of cases if intelligently employed.

In a recent statement by E. E. Rittenhouse, president of the Provident Savings Life Assurance Society of New York, the assertion is made that annually in the United States human lives equaling the population of the State of North Dakota are sacrificed through ignorance and neglect of reasonable and known preventive measures, and that preventable disease and accident yearly destroy more lives than have been lost in all the country's wars since the Declaration of Independence.

The waste of life due to the ignorance and carelessness of mothers is evidenced by a statement made by Mrs. C. W. Greene that of the 200,000 deaths of infants annually in the United States 52% are preventable.

Fearful losses of life and economic waste result yearly from preventable accidents. In 1907 2,500 persons were killed and 6,000 seriously injured in coal mining. For the year ending with June 30th, 1908, the railroads of the United States killed 10,188 and injured 104,230 more. Of the killed 381 were passengers, and of the injured 11,556 were passengers. Of the 29,000,000 persons working in the United States it is stated that 500,000 are killed

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or crippled each year, a greater number than were killed or injured in the Japanese-Russian War. President Van Hise of the University of Wisconsin says it is certain that proper precautionary measures might reduce the accidents to one-tenth of the present number.

A large number of hunting accidents are reported each year. More than 100 persons lost their lives in 1906 from hunting accidents. Very few occurred from mistaking persons for deer or other large game. The United States Department of Agriculture, which made an investigation of hunting accidents, reports that many accidents are due to gross carelessness in the use of firearms, such as pulling a gun out of a boat by the muzzle, looking down the barrel of a loaded gun and the handling of guns by uninstructed boys. The 22-calibre rifle and the shot gun prove more dangerous than heavy guns. Proper instruction in gun handling would no doubt reduce the accidents from firearms to a negligible number.

The extreme prevalence of accidents as shown suggests the need of better knowledge of dangerous employments and risky situations. Not a day passes without its toll of avoidable mishaps, entailing pain, expense, household sorrow and permanent injury. The situations in which

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accidents occur are continually being repeated, but adequate warning is rarely given, and individuals learn by experience of the most expensive kind. Mere prohibitions as usually given are not effective. Suppose the injunction is, "Do not let gasoline escape," or, "Do not jump from a moving train." Such admonitions unsupported by evidence and discussion have little weight with the young or inexperienced. Were a manual of accidents prepared in the spirit of science and widely known, tens of thousands of accidents, petty or grave, with their incidental expense, would be avoided every year. Hundreds of typical accident situations could be demonstrated in laboratories and lecture rooms, and thus an effective experience be had without the no more educational, but wasteful and needless, experience of real accident. It is questionable if people need to learn nearly so much by "experience." The purpose of education is to substitute learning by understanding for learning by experience.

If this boy had been taught the necessary lesson in applied physics the family residence might not have been burned. That water will spread an oil fire should be well known.

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EXPLOSION OF A LAMP.

Cando, N. D., Jan. 8.—The farm residence formerly owned by S. S. Thomas near Zion was burned to the ground with all its contents. Mrs. S. S. Thomas, daughter and youngest son, left early in the evening to attend the literary society meeting.

After getting his mother and brother and sister started, Edward, the oldest son who remained at home, went into the house and was preparing to read until time to retire. He found the large kerosene lamp in need of oil and filled and lighted it, setting it on the stand near the sofa. He had not read long when the lamp exploded; realising that quick action was necessary, he went to the kitchen and got the water pail and threw the water onto the oil, which caused it to spread, setting fire to the carpet and curtains. He fought desperately to extinguish the flames but it was too late, so he started taking out as much of the furniture as possible.¹

If every school child were effectively taught the danger of descending into wells, and knew how to test for dangerous gases, such fatalities as the following would be less frequent.

¹ From a newspaper.

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Cornelius Larson and son Carl near the Junction were working on their well Monday, and the son went into the well to do some work and was overcome by dead air and died in a short time. The father went to see the reason of his son not coming up and was also overcome. He is in a serious condition and hopes are entertained for his recovery. The unfortunate young man was employed in the law office of Attorney Ames, at Mayville, which position he resigned on Saturday. The funeral was held from the Bruflat church to-day.¹

In view of the tremendous losses by avoidable fires it would seem that the schools should teach the science of avoiding fires. Why should there not be a chapter in the school text-book discussing in sufficient detail the various ways in which fires originate? Very likely the fire insurance companies of the country could supply data on the origin of fires that could be utilised as a chapter in physics or elementary science. By teaching fire protection the schools might perform an economic service reimbursing the public in no small degree for educational expenditures. Simple laboratory exercises illustrating the origin of fires, and a few lectures

*fire
prevention*

¹ From a newspaper.

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would doubtless eventually greatly reduce losses by fire, which amount to over a million dollars a day in the United States.

patent medicines
The use of patent medicines is suggestive. The case against patent medicines is put in a nutshell by Professor J. B. Tingle of Toronto. He says, "Of patent medicines it is safe to say that a few are useful in certain cases, most of them are entirely without medicinal value, and some are decidedly harmful. All of them are enormously expensive to the purchaser, and no single one contains anything that is not well known to the competent medical practitioner."

The high percentage of alcohol in various patent medicines is *prima facie* evidence against their value.

Whisky is an innocent ingredient compared with opiates and coal tar products. Numbers of well authenticated cases of the death of children from sleep-inducing nostrums are on record, and serious heart disorders are traced to headache and neuralgia cures.

Nobody seems to know how much the public spends annually for patent medicines. Judging by the number of drug stores and the shelf space occupied by patent medicines, the amount of advertising by medicine firms, the estates of

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patent medicine makers and frequency of allusion to taking patent medicines, it is probable that millions of dollars are wasted every month on nostrums. In one district in a large city the sales of one patent medicine amounted in one month to \$6,300 and of another to \$2,800. One writer estimates the amount spent annually for patent medicines in the United States at \$100,000,000. A drug salesman in North Dakota estimates that three-fourths of the population in his territory use patent medicines, poor people buying most in an effort to do without doctors.

That the public suffers in health and purse from ignorance of the nature of commodities offered for sale is clear in the case of foods. The consumer has been and still is largely in the dark regarding the quality and make-up of the food he puts into his mouth, and feeds to invalids and infants.

Investigations show that almost all coffee contains chicory. Some contains ground peas, beans and bread crusts. Imitation coffee beans are coloured with Venetian red and burnt umber. Low grade coffee beans are varnished with chrome yellow—a poison—and with a mixture of eggs preserved in formaldehyde.

*Adulterated
Foods*

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Cocoas are adulterated with starches, arrow root and cocoa shells. Teas are adulterated with elm and willow leaves. Butter is coloured with aniline dyes and adulterated with marrow fat and water. E. F. Ladd, food commissioner of North Dakota, found that fully 95% of the butchers of the State were using preservatives containing injurious sulphites or borates. Maraschino cherries are bleached with brine and sulphurous acid, then loaded with glucose or sugar and coloured with coal tar dye or cochineal.

Horseradish, cheese, pepper, buckwheat flour, potted beef, turkey and chicken, canned beans, peas and corn, codfish, corn meal, fruits, jams, jellies, lard, meats, mushrooms, oleomargarine, oysters, pineapple, rye flour, sausage, tapioca, tomatoes and other edibles have been adulterated and marketed to millions of consumers in ignorance of what they were buying and to the injury of health and purse. Adulterations of many kinds of foods and of many brands of food have been discovered. Books are written on food adulterations and college courses given to the subject. The economic loss is conjectural, but that millions a year have been taken by the frauds of adulteration cannot be doubted.

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Knowledge of materials should extend to weights and measures. A weight-and-measure consciousness, inculcated by education, would mean much for popular welfare. It is estimated by the Bureau of Municipal Research of New York City that the people of that city are robbed of at least \$13,000,000 a year by short weight. This means that 1,000 families could be provided with an annual income of \$1,300 from this minor method of stealing as practised in one city.

Investigations made in New York City by the Bureau indicated that in Manhattan 44% of all scales, 59% of all measures, and 66% of all weights defrauded the purchaser.

Out of 37 stores in Poughkeepsie only 4 had correct apparatus. An investigator bought 24 pounds of butter in different stores in central New York. Only 3 of the 24 pounds were full weight. In Newark, Hoboken, Jersey City, Montclair, Orange, New Brunswick, Trenton and Camden, New Jersey, only 6% of 549 dealers visited had no deceptive weights and measures. Similar conditions have been found in Boston, Chicago, Detroit and Cleveland. A firm of scale manufacturers in New York City with an output of 100,000 scales a year made false scales and advertised to merchants that

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the scales would soon pay for themselves. In Massachusetts it was found that "in almost all instances $\frac{1}{8}$ barrel sacks of flour do not contain $24\frac{1}{2}$ pounds of flour."

A recent bulletin from the University of Wisconsin states that "over \$10,000,000,000 is spent in the United States annually for food, shelter and clothing and that 90% of this vast sum is spent by women who have had no training which would fit them to spend this money wisely and to the best advantage."

knowledge of fabrics.
Every consumer pays dearly for ignorance of materials. We look more and more to the specialist for expert knowledge, but we cannot delegate fully to him the function of judging the quality of purchases. The purchaser must always be to a large extent his own specialist and expert. Why should not every school in the land teach how to judge the clothes on one's back? If teachable knowledge of fabrics is not now available, could not such knowledge be readily organised and its essentials popularised? In the meantime silks fraudulently loaded with mineral matter, and furs from impossible animals are freely sold.

An incident of which the writer was a witness is in point. A woman came into a tailor's shop carrying a piece of goods costing over \$20 and

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supposed by her to be pongee silk. She came to ask the tailor if there was any way of removing the spots caused by water falling on the goods. The goods was ruined if the water spots could not be removed. It became evident that the goods was but a spurious pongee which was ruined by water. The piece was practically worthless. The woman's inability to test goods before buying caused a money loss that was registered in household deprivations.

Advertisements rarely give scientific descriptions of goods offered, the appeal being to the popularity of the dealer or the brand. Soaps of indifferent or even injurious nature are freely marketed. Many of those sold cheap for laundry purposes are actually much more expensive than higher priced soaps of better grade. The relative values of different kinds of coal is an important subject upon which too little is popularly known. Cement construction is of interest to large numbers. Expensive errors in its use are to be seen in crumbling basement walls and imperfect sidewalks and structures.

The time was, perhaps, when there was less need of knowing the quality of goods bought, as dealing was more direct between man and man, and the exploitation of ignorance was less

soaps
coal
cement

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attempted or less successful. Moreover, the vast increase in kinds of goods offered for sale has opened up opportunities for exploiting the buyer, for knowledge of quality has not kept pace with manufacturing. It is hardly too much to say that were the citizen informed upon the quality and original cost of the goods he buys, changes affecting the distribution of population and of wealth would be realised in society. The extent to which gains are made out of the buyer's ignorance is far greater than at first glance appears.

Silks are adulterated with mercerised cotton and artificial silks are made from cellulose. Such a thing as pure silk is rare, although consumers buy great quantities of supposedly pure silk. In dyeing, silks are weighted with sugar, starch, and tin chloride, increasing the weight as much as 150%. Silk fabrics have been found that were over 70% tin.

Dr. Pellew of Columbia University says: "Last winter I tried hard to get a piece of white taffeta that was not markedly weighted. I visited the department stores and the best dry goods houses in New York City, and was told that no such material now existed. The best I could do was to find a piece in which the

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warp was fairly pure and the woof well weighted." "Practically there is no such thing as pure silk," says Professor Mary Woolman of Columbia University.

Linen is freely adulterated and sold as genuine. "All linen" collars, handkerchiefs, and towels are frequently found all or largely cotton. Cotton has not as yet been much adulterated but it is predicted that if the price of cotton rises high enough, cotton too will be sold under fraudulent representations.

Woollen goods contain many a fraud in imitation of sheep's clothing, Blankets, dress goods and underwear bought for all wool are often found largely cotton. Cotton thread is veneered with wool, and by heat, moisture and pressure short woollen threads are felted on cotton fabrics. Cotton fibres are mixed with wool. Old woollens, as discarded clothing, carpets, rags, stockings, underwear and tailors' scraps, are mechanically shredded and used as adulterants. Such second hand wool is relatively worthless because of short fibres and treatment in chemical baths.

Manufacturers and dealers are able to defraud the public with adulterated textiles simply through the ignorance of the public.

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The public needs to know textiles, or to know how to secure protection by utilising the knowledge of specialists.

With 60% of the adult wage earners of the United States receiving a wage of \$600 or less a year, the importance of avoiding losses through adulteration is evident.

Investments require a special knowledge. A New York banking house publishes the statement that the loss in this country due to bad or speculative investments is \$640,000,000 yearly. One meets hardly a man who does not have a quantity of worthless stock or who has not lost through speculative investment. Small sums of money saved painfully in poor families are invested with fear and trembling, and often lost.

The man who as a boy studied the subject of percentage or stocks and bonds in the arithmetic gained, it is true, important and serviceable knowledge. Such knowledge is fundamental. However, such knowledge is inadequate; it should be supplemented by knowledge of the conditions surrounding problems in percentage and stocks and bonds. "Business practice" as set forth in school manuals is different from business practice in reality. Why

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should not knowledge of real business practice find a place in books of instruction? So long as fear depresses the small investor there is need of more explicit teaching. Exploitation rests upon the ignorance of the exploited. The inner workings of the commercial, investment and banking world might easily find a place in any scheme of education that purports to be practical, vital and democratic.

Even the teaching of general caution in investment would save the public millions of dollars. Without special instruction the average man would not believe, for example, that upon finding that a mining prospect was absolutely worthless men would organise a company, and start east to market the stock, simply because they needed the money. Nor would one ordinarily expect that city lots bought in good faith, but unseen, should be found at the bottom of a lake. Knowledge of cases of cheating should be made known. That the public is gullible is no very great reproach to the public but a very great reproach to the agencies of instruction, which permit a conspiracy of silence, while sometimes puttering with kinds of knowledge of no appreciable worth.

The schools would render a large economic service if they taught how to avoid being vic-

Cheating

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timised and defrauded. A list of all known swindles properly indexed and annotated would serve a valuable purpose. The victim of swindle often conceals his experience and takes no steps to warn others. The widest publicity should be given to schemes for fraud, and to trade practices where business success rests upon concealment of facts.

The economic importance of education for the prevention of susceptibility to fraud is implied in a current press note. Are not the agencies of public instruction responsible for the existence of a "sucker list"?

“Postmaster General Hitchcock has been doing notable work in prosecuting swindlers who make use of the mails. In the past year 78 prosecutions have been conducted successfully, firms and corporations being brought to account that have robbed the public of more than \$100,000,000 in the past five years. One of the most notorious of the swindling firms was Burr Brothers, with offices in Chicago, Seattle and other cities. They sold stock in fake mining, oil and railroad companies, amounting to millions. Their mail on the day of their arrest contained \$20,000. A long list of names known as the ‘sucker list’ was taken.”

The citizen usually lacks knowledge of the

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character and profits of concerns dealt with and of means to employ to prevent his exploitation by them. He should be supplied with both classes of facts.

The prevalence of cases of maladjustment to mechanical environment deserves special recognition in education. Even a fair knowledge of physics seems insufficient, inasmuch as many who have such knowledge fail to make the necessary connection between general principles and particular situations. A special physics of household appliances, of farm machines, and of the mechanisms met with on the street and in buildings is desirable. The housewife should know the construction of the gas metre, for example. Education should effect the adjustment of the individual to the mechanisms with which he comes in contact. The extent of his need to know machinery should be the measure of instruction actually provided.

The use of "modern conveniences" in houses leads to many exhibitions of ignorance. The family of a travelling man was nearly driven out of doors by a foul smell. A plumber explained that the sewer trap in the basement should be kept filled with water. A profes-

Vocation

*A knowledge
of
mechanical
matters*

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sional man, a college graduate, paid a plumber's bill to learn that sediment should be drawn off occasionally from a pipe in which muddy water is heated. The expense bill due to ignorance of mechanical appliances in common use runs into large figures.

The instances where ignorance of mechanical principles has resulted in losses, not to say disasters, are innumerable and of common knowledge. They range from the case of the woman who attempts to sharpen her scissors by drawing the blades between the V-shaped corrugated prongs of a knife sharpener, thus ruining the scissors, to the merchant who orders out an expensive hot water heating plant which has become useless because of a thick accumulation of soot between heating coils that quite cuts off the heat from the water.

Ignorance of mechanisms is illustrated by the following reported cases.

Some people left a house containing a hot water system and did not draw off the radiators. When they returned the system had frozen and through ignorance they started a very hot fire which caused the pipes to burst. A great expense was thus incurred.

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The engineer of a traction engine learned to run the engine in a purely empirical way. The effects of dirty and impure water in scaling the boiler and sticking the safety valve and water gauge were not understood. Result,—explosion killing two men and wrecking the machine.

A certain man thought that he could do his threshing cheaper by buying a machine himself. So he looked some over which were not so very large and not very expensive. After he had used the rig purchased for two or three days he found that the engine would not do the work. The company would not take back the engine.

The importance of adequate instruction in farm machinery is convincingly set forth by experts, who recognise the vast aggregate investment in farm machinery and the almost complete lack of instruction on the part of farmers properly to buy, set up and use.

The 1907 report of the secretary of agriculture says: "The continued scarcity of farm labour in almost all the agricultural regions in this country makes necessary the employment of farm machinery on an even more extensive scale than has hitherto prevailed. The total

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value of implements and machinery on farms in this country, according to the last census, was \$761,261,500, an average of \$133 per farm and of 90 cents per acre of farm land. Much of this machinery is elaborate and complicated in construction and requires mechanical skill and genius for its most efficient operation and care. In very many cases it is also essential that the farmer should understand how to repair such machinery. It represents an important part of the farmer's invested capital upon which he must earn or pay interest. That there is an enormous waste of money due to neglect and unskilful handling of this part of the farm equipment must be obvious to any one who has travelled through the regions where it is most used."

Continuing he says: "No more significant change is taking place in American agriculture than the extent to which different kinds of motive power are taking the place of men and animals. The use of the traction engine and automobile in place of the horse on country roads, and the employment of gasoline, steam, wind, and electric power to operate mowers, threshers, ploughs, feed cutters, corn huskers, and dairy machinery are illustrations of epoch-making changes that are now going on on every

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modern American farm. On one ranch in California there is \$60,000 worth of farm machinery operated by some other power than animals or man. For want of proper information these changes are involving farmers in serious mistakes and large losses. They buy motors not suited to their requirements or which they do not know how to operate. They buy machinery not adapted to their conditions and cause its rapid destruction by not knowing how to care for it.

There is made and sold each year in this country about \$100,000,000 worth of farm machinery. Fully one-half of this goes into the hands of men who do not know how to select it wisely or to keep it in proper condition. The waste which results runs into millions of dollars annually."

While the need of mechanical knowledge is universal the farmer especially has come to require an extensive knowledge of machinery. Methods of agriculture have developed toward the mechanical. If he is not to be at the mercy of others the farmer of to-day must be versed in mechanics. He needs to know what machines to buy and their principles of construction. Expert service required to set up or repair his machines costs heavily. The loss due

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to neglect of machinery and inability to make simple repairs costs the farming class dearly. To decide among makes in purchasing taxes one's knowledge of materials and mechanics.

farming
A steady lessening of soil fertility over large areas implies ignorance of proper methods of farming. Exploitative farming has resulted in serious loss of phosphorus from the soil, an element that can with great difficulty be replaced, as nature affords but a limited supply. The worn-out tobacco lands of Virginia, and lands in New York, Ohio and various other States have been seriously depleted in phosphorus. One-third of the State of Illinois is said to be deficient in phosphorus, and the cropped fields of Wisconsin have lost more than a third of that element.

The falling off of the wheat yield in northern California, in the Willamette Valley, and in the Dakotas is ascribed in part to the loss of phosphorus. Continuous grain raising, so widely practised, results in serious soil exhaustion. It is inconceivable that farmers acquainted with the chemical elements of the soil and having a tolerance of science would persist in ultimately ruinous methods. Education is needed with reference to the losses of chemical ele-

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ments from the soil due to the exportation of grains, the waste of manure, and the draining away of soil constituents in the millions of tons of sewage poured into the rivers and sea.

One of the sources of loss is the improper selection of seed. The importance of good animal stock for breeding purposes is coming to be appreciated by the farmer, but he is still indifferent to the possibilities of high bred wheat, oats and other crops. A writer on the subject of seed selection in North Dakota, President J. H. Worst, estimates that the right selection of seed wheat would result in an increase of five bushels to the acre for the State, representing a gain of between twenty and twenty-five millions of dollars annually to the farmers of the State. The same writer asserts that an equal amount in addition would be gained by right cultivation.

Plant diseases, largely controllable by scientific methods, entail enormous losses. Oat smut cost the farmers of Wisconsin \$4,500,000 annually, some years ago, according to R. A. Moore. The formaldehyde treatment of seed barley and oats makes unnecessary any loss of these crops from smut. The losses the country over from plant diseases total into hundreds of millions of dollars.

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North Dakota produces about 60% of the flax produced in the United States, but the crop will soon be lost to the State, according to O. O. Churchill, unless great care is used in controlling flax wilt, a parasitic disease of the plant. Methods of control have been satisfactorily developed. It remains with the educability of the farmer to decide the future of flax in the State.

Crop losses from weeds can be very largely eliminated by scientific methods. These methods are cutting or pulling, cleaning seed grain, burning stubble and composting manure, cultivation, smothering and spraying. Instruction of farmers in these methods would greatly reduce money losses from weeds, annually reaching many millions of dollars.

drainage
Ignorance of the need of drainage and of how to drain farm lands needs to be overcome. Out of 100 farms entered in a "model farm" contest in 1906, in North Dakota, not five were found, by Thomas Shaw, which were not suffering from lack of drainage, "and where the crop had not suffered, and suffered severely and very materially because the land had not been sufficiently drained."

He adds that "it is no exaggeration to say that there have been millions of dollars lost to the Red River Valley on account of the lack of

Some Places Where Knowledge Is Needed

drainage to the lands." The mere statement of these conditions raises a presumption that the educational agencies to which the farmers must look for aid have not yet succeeded in getting their attention or in imparting a saving knowledge.

Losses from animal diseases are large and mostly preventable. The losses for 1907 were estimated for the United States at \$267,000,000. The diseases included hog cholera, cattle tick, scabies, tuberculosis, anthrax and others. The economic value of knowledge functioning for the prevention of animal diseases is evident.

Animal diseases

The selection of knowledge for diffusion by the school or other agencies should be in response to needs as exhibited in the various relations of the individual. Adjustments in actual progress and maladjustments resulting in losses and sufferings, of which the foregoing are merely illustrative, are signboards to the choice of information to be made available by diffusional agencies.

very significant

XIV

A DEMOCRATISED CURRICULUM

ASSUMING the evaluation of information, the formulation of a curriculum in outline may be attempted. The importance of a properly balanced curriculum can hardly be overestimated. All children in the public schools should have nearly the same studies up to about the age of eighteen, when differentiation of studies for vocational reasons may properly occur. Every year and grade should offer a combination of the three main types of knowledge, adapted to the capacity of the learner.

Heretofore there has been little differentiation of courses among the pupils in the elementary schools. The three R's with more recently added studies, such as physiology, music, drawing, nature study and hand work, have been freely offered to all pupils of the public schools. There are not wanting advocates, however, of the plan of distinguishing among pupils at an early age, giving those who are from poor families a maximum of productional

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subject matter while instructing others in a wider range of subjects. It is to be hoped that there may be no cleavage in the elementary schools which may tend to class divisions in society.

In the field of secondary school education there are numerous examples of curricula not evenly proportioned among the significant types of knowledge, and it is with reference to high schools that the problem of a democratic curriculum is most acute. High school curricula of the more usual type contain a superabundance of consumptional subject matter. This may be accounted for on the ground that until somewhat recently the high school catered to a prosperous class in society whose children were destined for college or for a scale of living above that of the wage-earner. The extent to which foreign languages have appeared in high schools implies the consumptional aim. While sciences are freely offered in high schools of the consumptional type, they frequently are presented in such form as not to meet especially well the needs of the producer. The general information or cultural value of botany or physics may be emphasised rather than the actual uses of these subjects.

Another type of high school, on the other

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hand, exalts the productional aim at the expense of the consumptional. The trade high school and the agricultural high school may go to this extreme.

Among the colleges and universities, considerations of democracy, so far as it depends upon studies, are not so urgent, inasmuch as the student is supposed to have reached a maturity at which specialisation need not interfere with citizenship, and it is probable that if the secondary and elementary schools did their work according to democratic ideals there would be no need of anxiety with regard to the specialisation of the student in his choice of studies in the higher institutions. As the case stands, however, it is a question if the graduates from the engineering courses of our universities always have sufficient education for citizenship. In agricultural colleges, similarly, the rapid development of purely productional studies and the pressure from the public for increase of agricultural production tend to result in the graduation of students who, while eminently trained for production, are perhaps often inadequately trained as consumers and distributees.

Institutions giving a disproportionate amount of attention to distributional knowl-

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edge do not seem to exist. Indeed it is hardly possible to give an example of a curriculum having even a suitable amount of such information. The courses of study offered in law schools seem most nearly to represent the curriculum of distribution.

As an example of the predominantly cultural or consumptional curriculum, so frequently found in American high schools, the following courses of study, of the Tyler County High School, Middlebourne, West Virginia, are given:

FIRST YEAR

FIRST SEMESTER

Algebra
English
History
Latin
Drawing
Music

SECOND SEMESTER

Algebra
English
History
Latin
Drawing
Music

SECOND YEAR

FIRST SEMESTER

Algebra
English
History
Latin
Drawing
Music

SECOND SEMESTER

Geometry
English
History
Latin
Drawing
Music

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THIRD YEAR

FIRST SEMESTER

Geometry
English
History and Civics
Physics or Chemistry
Latin (optional)
Music (optional)
Drawing (optional)

SECOND SEMESTER

Geometry
English
History and Civics
Physics or Chemistry
Latin (optional)
Music (optional)
Drawing (optional)

FOURTH YEAR

FIRST SEMESTER

English
Botany or Zoology
Latin (optional)
Teachers' Course (optional)
Music (optional)
Drawing (optional)

SECOND SEMESTER

English
Botany or Zoology
Latin (optional)
Teachers' Course (optional)
Music (optional)
Drawing (optional)

At the other extreme is the almost exclusively productional curriculum of the Lowell Textile School, which follows:

COTTON MANUFACTURING

FIRST YEAR

FIRST TERM

Mechanism
Mechanical Drawing
Mathematics
Hand Loom Weaving and Elements of Design

Elementary Chemistry
English
German or French
Physical Culture

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SECOND TERM

Cotton Carding, Drawing and Spinning	Mechanism
Textile Design, Cloth Analysis, Hand Loom Weaving	Mathematics
Elementary Inorganic and Organic Chemistry	Machine Drawing
	German
	English
	Physical Culture

SECOND YEAR

FIRST TERM

Cotton Carding, Drawing and Spinning	Machine Drawing
Textile Design	Steam Engineering
Power Weaving	Weaving Mechanism
Textile Chemistry and Dyeing	Physics
	Industrial History

SECOND TERM

Cotton Spinning	Machine Drawing
Textile Design	Hydraulics
Power Weaving	Strength of Materials
Textile Chemistry and Dyeing Lecture	Physics (Elementary Electricity)
Dyeing Laboratory	Industrial History

THIRD YEAR

FIRST TERM

Cotton Yarn Manufacture	Power Weaving
Knitting	Cotton Finishing
Textile Design, Cloth Construction	Mill Engineering
	Advanced Electricity

SECOND TERM

Cotton Yarn Manufacture	Power Weaving
Knitting	Cotton Finishing
Textile Design, Cloth Construction	Mill Engineering
	Thesis

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Another example of a secondary school curriculum offering little except productional subject matter is that of the Crookston, Minnesota, School of Agriculture, as follows:

COURSE OF STUDY

FIRST YEAR

FIRST TERM

Farm Botany

Drawing

Music

Farm Mathematics

Poultry

Social Culture

English

Agriculture

Blacksmithing

Carpentry

Military drill

} or {
Cooking
Physical Training
Sewing

SECOND TERM

Farm Botany

English

Music

Study of Breeds

Poultry

Carpentry

Drawing Farm Buildings

Blacksmithing

Military Drill

} or {
Cooking
Laundering
Drawing Farm Houses
Physical Training
Sewing

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SECOND YEAR

FIRST TERM

Agricultural Physics

Dairying

Fruit Growing

Music

Farm Accounts

Stock Judging
Breeding
Military Drill
Gymnasium

}	or	{	Cooking
			Household Art
			Physical Training
			Sewing

SECOND TERM

Agricultural Chemistry

Dairying

Music

Agricultural Physics

Vegetable Gardening

Field Crops
Military Drill
Gymnasium

}	or	{	Cooking
			Home Management
			Physical Training
			Sewing

THIRD YEAR

FIRST TERM

Agricultural Chemistry

Forestry

Entomology and Zoology

Algebra (optional)

Handling Grain and
Machinery
Veterinary Science
Gymnasium
Music or Military Drill

}	or	{	Cooking
			Sewing
			Music

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SECOND TERM

Civics or Geometry
Plant Propagation
Algebra (optional)

Dressing and Curing	}	or	Meats
Meats			Home Economy
Stock Judging			Cooking
Feeding			Domestic Chemistry
Soils and Fertilisers			Domestic Hygiene
Veterinary Science			Sewing

A curriculum, admirable in its formal recognition of production and consumption, is that of the Petersham, Massachusetts, Agricultural High School, as follows:

FIRST YEAR

Algebra	English (Composition)
Agriculture (Boys)	Spelling
Domestic Science (Girls)	Drawing
Book-keeping	Music
Ancient History	Rhetoricals
Elementary Physics	

SECOND YEAR

Geometry	English History
Agriculture (Boys)	Elementary Chemistry
Domestic Science (Girls)	Spelling
Manual Training	Drawing
French or German	Music
English (American Literature)	Rhetoricals

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THIRD YEAR

Agriculture (Boys)	Physics (Laboratory)
Domestic Science (Girls)	English
Manual Training	French or German
Biology	Spelling
Botany	Drawing
United States History and Civil Government	Music
Physiology	Rhetoricals

FOURTH YEAR

Agriculture (Boys)	Astronomy
Floriculture (Girls)	Trigonometry and Surveying
Chemistry (Laboratory)	French or German
Zoology	Spelling
Geology	Drawing
English (Rhetoric)	Music
English (Literature)	

One of the most interesting offerings of distributional subject matter is that from the departments of political economy and political science of the University of Wisconsin. The potency for democracy of distributional subject matter may be fairly inferred from the fact that Wisconsin is styled our "model commonwealth," that to a large extent the leaders of reform movements in Wisconsin have been educated at the University, and that these departments have been the seed plots of their political ideas. The following subjects are taught in these departments:

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Elements of Economic Science	Corporation Economics
Elementary Sociology	Insurance Economics
Elements of Public Finance	Charities and Corrections
The Elements of Money and Banking	Public Utilities
Business Administration	Socialism
Commercial Law	Value and Prices
Industrial Evolution and its Problems	The Distribution of Wealth
History of Economic Thought	Monopolies and Trusts
Modern Socialism	The Constitution of the United States
Labour Problems	History of English and American Law
Labour Legislation	Jurisprudence
Problems in Taxation	Municipal Government
Agricultural Economics	State Administration
Economic Statistics	Federal Administration
Financial History of the United States	Party Government
Corporation Finance and Securities	The Theory and Practice of Legislation
The Money Market	Current Political Topics

A SUGGESTED CURRICULUM

The following outline of studies is offered as satisfying the requirements for a democratic curriculum. The period covered is from the pupil's entrance to school up to the end of secondary school attendance. With the exception of trades, the studies are designed for both boys and girls and for all students alike. The various subjects may or may not correspond with subjects as at present organised. A large number of text-books, of as brief com-

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pass as possible, is contemplated. The bulkiness of the course is apparent rather than real, inasmuch as the various subjects are thought of as stripped of all surplusage. Division into grades and years is a matter of school administration not important in connection with the purpose for which the curriculum is suggested, *i. e.*, the nature and relative proportions of subject matter.

PRODUCTION

Language (vernacular)

Practical Mathematics, including portions of arithmetic, algebra and geometry

Elements of Manufacturing,—materials, processes, mechanical drawing, manual training

Elements of Agriculture,—soils, crops, animals, etc.

The Sciences,—productional phases of botany, physics, geology, mineralogy, chemistry, etc.

Conservation of Wealth,—sanitation, fire prevention, natural resources

Trades,—brief courses in many trades, as housekeeping, farming, carpentry, printing, plumbing, railroading, stenography, dressmaking, nursing, etc., etc., according to choice.

DISTRIBUTION

Current Political Events and	Slavery
Social Movements	Feudalism
Economic History	The Elective Franchise
The Distribution of Wealth	Inheritance
War	Taxation
International Peace	Political Parties

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Comparative Government	Charity
Direct Legislation	Old Age Relief
Labour Organisations	Investments
Socialism	Frauds
Money	Cooperation
Graft	Parliamentary Practice
Corporations	Sociology
The Middleman	Law
Banking	Constitutions
Insurance	Civics
Modern Business	

CONSUMPTION

Literature	Travels
History	Qualities of Goods
Music	Home and Personal Appoint- ments
Painting	Social Usage
Sculpture	Grammar
Architecture	Elocution
Ethics	Logic
Foreign Languages	Philosophy
Sciences,—non-productional aspects	Floriculture
Recreations,—golf, tennis, boating, swimming, etc.	Hygiene
The Stage	Vice
	Crime

In the administration of the curriculum the part of the teacher is of great importance. No subject matter can be prepared in text-book form so well as not to require a large amount of adaptation to the pupil by the teacher in charge. The interpolation of information by

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the teacher and especially the emphasising of the more valuable points in lessons are activities taking precedence over formal outlines. Higher efficiency in the curriculum depends in no small degree upon the resourcefulness, initiative, breadth of view and experience of the teacher.

The rejection of relatively valueless information calls for the united efforts of teachers and text-book writers. The making over of subjects by internal changes is possible to a large degree through the work of text-book writers. The writer of text-books in history may, for example, bring into prominence certain features, as inventions and ideals, and throw into the background others, as royalty and war. The bulk of knowledge at hand makes the election of some facts to the exclusion of others an educational necessity, and the task of elimination is therefore inevitable. The choice of the better portions should accordingly be easy.

Educational use of materials of a mythical nature is to be carefully judged. The fact that children enjoy myths is one reason for letting them have them, but on the other hand there is a question as to the wisdom of employing ideas not true, especially if their untruth is not rigidly faced. Spurious knowledge hinders the

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reception of reliable, and confuses the child in his attempts to unravel the mysteries about him. Credulity on the one hand, or suspicion of science and a slovenly attitude of mind, may probably be traced in some individuals to overmuch acquaintance with the unrealities of children's literature. Few adults are free from superstitions and half truths genetically related to the fairy tales, myths and falsified accounts of nature's operations so abundant in the materials supplied children.

XV

IN CONCLUSION

KNOWLEDGE arises out of the contact of the individual with his environment and has value as it plays a part in subsequent adjustments. Its worth is to be judged by the extent to which it enters into the relations of life and operates to promote wellbeing and correspondence with the various elements of environment. Many mental products are spurious knowledge. Of the knowledge which is real much consists of items of minor value for adjustmental purposes.

To determine what kinds of knowledge are of most importance the major social or economic relations of man must be considered. The individual lives immersed in social relationships and evidently most important kinds of knowledge arise in connection with experiences in the social relations. The social facts of the production, distribution and consumption of wealth are the main trunks of experience along which life advances, and sciences and informal

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information have accumulated related to these social facts. Man as a producer, distributee and consumer undergoes experiences in these relations resulting in imposing compilations of information as well as in multitudes of separate observations not found in detail in books. The consumptional relation, however, involves the appreciation of not only goods of immediate necessity, but the higher fabrications of skill and genius, as music, poetry, statuary, architecture, and elegancies and, as well, appreciation of human and moral relationships and values associated with cultivated tastes and extended ideals. The position of consumption and appreciation as the final mode of experience, presupposing the production and distribution of wealth, correspondingly exalts consumptional knowledge and gives peculiar worth to accumulations of experience which teach how to make the best use of things and to respond to the highest values of manufactured, natural or moral utilities.

To live happily implies a sufficient possession of the knowledge which has accumulated through the experiences of oneself and others in the past, such knowledge serving to guide exactly or as forming the basis of ideals. The child and the savage, lacking the benefits of

In Conclusion

vicarious experience, illustrate by contrast the importance of an adequate supply of functioning information. The critical importance of a sufficient supply of evaluated information creates a fundamental problem of social administration, that of the diffusion of knowledge.

The diffusion of knowledge is realised by various agencies. Informal or simple communication, as by conversation, the church, the press, the specialist and the school system are means of realising the diffusion of knowledge. Other means supplementary to those now developed and a further enlargement of existing agencies of diffusion are made necessary by the insistent demands made upon the individual for vicarious experience with which to meet the exigencies of life under increasing complex and fluctuating conditions. Agencies of diffusion should make it possible for any person to obtain any information at any time for any situation. Such an aim contemplates a far higher diffusional efficiency.

Of the agencies of diffusion the school is of prime importance. Historically the school has accomplished much toward providing the individual with knowledge needed, but various limitations of usefulness have been evidenced. The doctrine of formal discipline, resulting in

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emphasis upon training of mind rather than upon content of mind, has been inconsistent with the largest usefulness of the school as a diffusional agency. Traditional and unevaluated subject matter has been dispensed through the curriculum to the neglect of that meeting tests of utility. Tests of utility have in fact neither been systematically and thoroughly sought nor freely admitted as desirable. The school, too, has been a means of social ambition catering rather to the classes than to the masses. Instead of democratising society through the curriculum the school has in cases organised curricula of consumptional subject matter of a sort derived from leisure class experiences, neglecting both that type of consumptional matter which might elevate the standards of living among the poor and also productional subject matter.

Current tendencies are toward the correction of certain faults of conventional curricula. The introduction of productional subject matter tends to reform the curriculum in an important particular. With the introduction of productional studies, however, there is danger of a possible neglect of consumptional matter of the right kind, but more particularly of the continued absence from the curriculum

In Conclusion

of a type of knowledge, of all kinds the most strategic for democracy, that related to the distribution of wealth. Trade school curricula made up of exclusively productional content have a tendency to form wealth creators rather than citizens capable of taking part in political movements whose aim is equality of conditions and democracy of opportunity. Democracy cannot exist unless the individual is supplied with the three main types of knowledge, and any curriculum in the public schools below the higher institutions in which the student is not provided with knowledge making him a producer of wealth, an intelligent user of wealth and an enlightened citizen fitted to participate in the regulation of the distribution of wealth, would infallibly undo democratic institutions if not corrected by extra-scholastic agencies of knowledge diffusion.

The inheritance of large bodies of subject matter through the curriculum, ever in excess of the mental capacity of the student, tends to obscure the need of developing new materials for instruction. Accordingly large quantities of information of vital significance are quasi esoteric, existing as occupational and class experience and inuring to the benefit of the initiated only. The economic advantage of pri-

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vate information is such that heroic efforts are necessary to discover and make accessible the hidden knowledges upon which inequalities have been based in the past and by which the few triumph over the many in spite of democratic theory. The stubborn efforts required to unearth and compile a limited store of information in regard to graft and the baffled attempts of even inquisitorial bodies to get at the inwardness of predatory corporations suggest how valued by the beneficiary such knowledge is, and by contrast suggest how beside the mark much knowledge dispensed in the conventional curriculum has been. The social results of equally distributed knowledge may be estimated from the changes produced in any community by setting forth the full facts regarding any public business. The evils of society flow rather from lack of information than from lack of capacity to understand. The intermingled ancestry of all classes implies a fair parity of capacity, a fact which is evidenced in the primary school more often than the reverse. The rejection, then, of quantities of material found in curricula and the inclusion of more carefully evaluated information representing the individual's interests in his major

In Conclusion

social and economic relations are steps toward greater educational efficiency.

The function of knowledge in making possible proper adjustments to environment implies that points of need in society be accepted as guides to the choice of materials for diffusion. A diagnosis of the results of ignorance or a discovery of those relationships specially calling for information should precede the setting up of curricula and direct the efforts of formal agencies of diffusion. Knowledge is a remedy for maladjustments, which may be reported from social surveys. Disease, crime, poverty, economic disadvantage, unskilled labour, parasitism, juvenile delinquency, wasteful methods of production or other evidence of wrong living bespeaks the need of particular knowledge directed to cure the maladjustment.

The curriculum is an increasingly influential vehicle for the diffusion of knowledge. In the earlier years of childhood, it is true, the volume of knowledge sent through the curriculum is relatively small due to the child's mental calibre. But with the expanding intelligence of the child the curriculum becomes one of the chief means of disseminating information. Indeed the orderly arrangement and impartation

The Education of To-morrow

of facts by means of the curriculum give it a peculiar advantage among all agencies.

Improvement in the efficiency of the curriculum requires a critical appraisal of the value of its content. Subjects as grammar, physics, mathematics, history and language, need to be taken apart and remade according to principles derived from observations of utility. There is no good reason why a subject, as Latin, should not be tested as to its utility in a given community. The extent to which kinds of knowledge actually function in the relations of life is ascertainable. There need be little guess work as to the extent to which algebra plays a part in adjustments, for example. Under the theory that it matters little what one studies so long as he studies something, irrelevant knowledge has held too large a place in the curriculum, which fact reminds one of the tale of the old professor of mathematics who upon discovering a new mathematical formula exclaimed, "There, thank God nobody can ever use that!"

The educational world should resolve itself into a commission to take testimony as to what knowledge is proved of most worth and to substitute the valuable for the relatively unimportant. The time-honored practice of teaching

In Conclusion

unevaluated information is hardly in keeping with the highest welfare. Scores of subjects or topics not in the curriculum ought to be in, and divers conventionalised studies might be dismantled as such with benefit to the diffusion of vital knowledge.

The curriculum for the formative years should contain materials selected for their applicability to the later life of the pupil, insofar as his life may be forecasted in the light of experience and directed under democratic ideals of what the citizen should know and be. What is taught should be of no untried or unappraised character. The individual is to be put in adjustment to his environment, whose demands are definite and capable of broad classification if not of specific discovery.

The fusion in the curriculum of the knowledge derived through human experience with the productional, distributional and consumptional aspects of environment is of prime importance. The seminary which has in mind only consumptional culture, and the trade school which makes no provision for civic influence and the worthy use of goods when produced, and the school which aims at mental discipline regardless of the content of subjects taught as determined by objective tests, are

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alike faulty. A liberal education, and every child is surely entitled to such, provides with such information as makes for suitable relations, not merely to a phase of experience, but to the wide circle of vital needs of whatever grade.

Education is capable of rendering services to humanity which as yet can hardly be conceived, but educational reconstruction is no light task. Once firmly grounded in democratic theory, however, the working out of special materials to be included in the curriculum—the ten thousand and one bits of knowledge of demonstrated superior value—may proceed year by year under many willing hands.

THE END

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